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Alaska–A Reserve For News Print

Economic Conditions in the Paper Industry Make it Advisable to Postpone Any Development of Alaska's Timber Resources for News Print Purposes—Jesse H. Neal, General Manager and Treasurer of the American Paper and Pulp Association, New York, Appeals to President Hoover for Suitable Executive Action

Jesse H. Neal, general manager of the American Paper and Pulp Association has addressed the following letter to President Hoover.

"Your attention is respectfully invited to a condition which constitutes a menace to the Newsprint Industry and which it is within your power to remedy if, upon a consideration of the facts, you deem it wise to take the suggested action.

"We refer to the pending negotiations for the sale of national forest timber in Alaska for conversion into newsprint together with the necessary water power rights. We are in hearty sympathy with the high motives of the government in undertaking to promote the commercial and industrial development of Alaska, and the paper industry looks forward to the time when the rich timber resources of Alaska will provide needed raw materials on a sound economic basis.

"Under the conditions presented in the accompanying survey, however, we are firmly of the opinion that all pending negotiations should be dropped and that no other offers of Alaskan or other national forest timber entailing paper or pulp mill construction, should be made until a need arises which does not now exist.

"To thrust unwanted production upon an overexpanded industry struggling with a diminished demand and vanishing profits would make a bad unemployment situation worse and further depreciate a capital investment of over 800 million dollars in the United States, Canada and Newfoundland, of which more than 600 millions is estimated to have been invested by citizens and companies of the United States.

"The survey shows that there could be no possible gain to the consumers of newsprint in price or service; that the present supplies of pulpwood are ample; and that the continental newsprint industry right now is equipped to produce two million tons in excess of the average consumption over the past five years.

"We appeal to you, therefore, for suitable executive action to remove the disturbing threat of government timber in Alaska and establish it as a great reserve for the future."

The survey referred to in Mr. Neal's communication to the President is in part as follows:—

The news print paper industry in North America is expanded beyond its domestic needs and its overseas export possibilities. It faces uncertainty. In neither the United States nor in Canada may the industry now operate at efficient volume, nor can immediate markets be found that are capable of absorbing the excess production. Prices have declined, yet many companies find that costs tend to move slowly upward. But few companies are paying dividends on preferred stock; many have failed to make bond interest, and with few exceptions none are making returns on common stock. Moreover, American news print consumption gives evidence of more than a temporary cessation of increase.

Obviously this is no time to expand paper making facilities. It is a time for retrenchment. This the industry realizes; no new production facilities will be added this year, save one 80-ton machine by a small company which has long time contracts. Nor are machine installations planned in either the United States or Canada, with the exception of Alaska where the United States Forest Service has offered preliminary timber contracts contingent upon the construction of two mills with a combined annual capacity of 150,000 tons. There is no justification for the completion of these contracts or for other offers of national forest timber entailing paper mill construction, until balance between supply and demand in the American news print market has been established, and until the industry has had opportunity to lift itself from the uneconomic conditions that have developed since 1926. Moreover, under the terms of the conditional award of these two Alaska timber sale projects (which terms were advertised as a basis for bidding) the awards have become void on account of the expiration of the power permits which accompanied the award.

The sale of national forest timber in Alaska for conversion into news print is premised first upon the shortage of pulpwoods in the United States suitable for news print manufacture, which has necessitated large imports; second, the eminent suitability both of Alaskan timber for news print, and of the industry for the early commercial development of Alaska; and, third, upon the Federal Government's desire to hasten the industrialization of the region.

These purposes are laudable; their ultimate accomplish-

(Continued on page 30)

Pennsylvania Paper Mills Curtail Output

Majority of Keystone State Manufacturers Are Operating From Three to Four Days Weekly—Paper Board Plants Cutting Down Production Materially—Some Fine Paper Mills Have Sufficient Orders Booked to Ensure Full Time Schedule

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., August 3, 1931—In the midst of the summertime quietus the Philadelphia paper industry is more concerned with building for Fall business than in obtaining immediate orders. The trade keeps tuned in with inquiries by sales promotion work and in a few exceptions are landing orders in fairly good volume, although deliveries are not to be made until late August or early September. The drives are made by the fine paper houses, tieing in with the manufacturers in campaigns on certain products, which are taken in turn and brought to the attention of consumers throughout the territory, either by direct mail contact or by personal appeal from salesmen working the section. While the work at present is not expected to bring immediate results, it is building future business and, if industry shows improvement now forecasted, will result in actual orders.

Wrapping Papers Slow

Wrapping papers are draggy, with the exception of specialties used by manufacturers of various products in the way of waterproof, food wraps, or in Cellophane. requirements combined with paper or in plain Cellophane. Hot weather supplies, too, are most active, and the intense heat wave of the past fortnight has necessitated shipments in considerable volume over the territory. Dealers in such hot weather sanitary supplies state shipments hold at seasonally normal proportions. Bags are moving fairly well and hold to the advanced prices. Advances in the price of kraft of $5 per ton does not appear to have stimulated demands at this time though there are many inquiries for future deliveries. Tissues see-saw in price among manufacturers. The sulphite tissues have been reduced fractionally by some producers while others manufacturing the better grades of tissues either advance values or hold them at the spring levels. Sulphite manilas have also met fractional reductions. Builders supplies are dragging along and are back to prewar prices, following a reduction a few days back. Sheathing is now available at $37 per ton delivered. Grey bogus is down to 1½ cents from mills. Roofings are quiet, and hold at rock bottom prices of the post war years.

Mills On Curtailed Schedules

Mills are operating on curtailed summer schedule, with most of the manufacturers operating from three to four days per week. Board mills are not finding normal tonnage available and have cut down to two and one half days, those having container plants attached operating on the three to four day schedule. The manufacturers are engaged in overhauling mills while the summer dullness prevails. A few fine paper mills have enough advance orders to operate on full time, but they are chiefly engaged on contracted business rather than orders obtained in the late weeks.

Better Grades of Paper Stock at Low Ebb

Better grades of paper stock are at low ebb, with few accumulations despite the dullness. The cheaper grades are plentiful and some wholesalers are refusing to buy further until the present accumulations are disposed of. Mills are making more inquiries for the better grades, but show no interest in cheaper grades. Prices are lowest in the past fifteen years. Rags also are low in price and of little demand.

S. Spector & Co. in Bankruptcy

The wholesale rag firm of S. Spector & Co., 1711 Philip street, has been involved in involuntary bankruptcy in the U. S. District Court here. The creditors are Louis C. Bernstien, $253; Charles Kret, $86; and F. M. Lamenia $386. The firm is one of the oldest rag houses of the Quaker City trade.

Huff Paper Co. Campaigns

Representing the line of Cellophane bags made by the Continental Paper and Bag Company, the Huff Paper Company, Terminal Commerce Warehouse Building, is now conducting a vigorous campaign in the sales promotion program now under way. The cellophane bags in the Continental line cover a full range of sizes with remarkable printing designs in two and three colors. There are also produced special sizes to order.

Charles A. Labor Returns

Charles A. Labor, eastern district manager for the Champion Coated Paper Company, has returned to his desk following a trip to Cincinnati, Ohio where he attended the funeral services of the late president of the Champion Coated Paper Company, Peter G. Thomson, Sr., who passed away at his home in the Ohio city, July 10, and was buried the following Monday. Mr. Labor visited the mill headquarters before his return.

G. W. Ward to Bring Direct Mail Exhibit

President George W. Ward, head of the D. L. Ward Company, and originator of the Direct Mail Leaders Exhibit, will arrange to have the current year's assembly of direct mail matter selected from the best specimens of campaigns conducted by leading concerns, shown at the Poor Richard Club here for the first time before it is sent on its way over the country in the annual round of advertising clubs of the United States. The Direct Mail Leaders Exhibit will be selected and awarded at the Direct Mail Advertisers Convention, to be held in Buffalo in October, when prize awards will be given for the best specimens of work sent out over the current year. A new feature of this year's exhibit will be the personal appearance of the men responsible for the direct mail material, which will be selected in the prize winning leaders, who will go into details of the specimens and their composition and campaign results. These men are the advertising managers and promoters who originated the direct mail matter and among them heads of noted advertising concerns as well as managers of advertising departments of leading direct mail users.

Hinde & Dauch Remodels Gloucester Mills

During the summer months there are numerous improvements being made to the mills of the Hinde and Dauch Paper Company, at Gloucester, N. J., in the way of rebuilding paper machines and additions to units of devices that will speed up and expedite better produc-

tion. The improvements are being made to the paper machines in the board mills. Among the improvements are installation of electrical units including the addition of general Electric Company drives. These are G. E. Single Motor Drives for the container board machine control.

McDowell Paper Mills Improved

Under the summertime overhauling of units and machines in the paper mill of the McDowell Paper Company, Manayunk, provision is made for the rebuilding of the turbine and the perfection of its operation by addition of the most modern devices. The improvements augment the series of other innovations and modernization of the mills and its equipment and the bringing of these up-to-date with the latest paper making mechanical devices. The McDowell Mills under these expansions and improvements are now kept on a parity with other modern mills of their size in machinery and power devices, though the firm and the mill are more than a hundred years old. In recent times the mill has been given over to production of waxed papers and high grade glassines, and fine wrapping papers such as those used by the drug trade. Charles McDowell, head of the firm, is back from a yachting trip in the Lake Champlain section.

D. M. Bare Paper Co. Replacing Fly Wheel

The fly wheel of the plant of the D. M. Bare Paper Company of Roaring Springs, Pa., manufacturers of book, lithograph, offset and mimeograph papers, which recently was broken in the course of an accident to the equipment, has been replaced with a new one. The mills have resumed operations after overhauling of the units.

Paper Trade Meeting Postponed

Owing to the lack of attendance the quarterly meeting of the Philadelphia Paper Trade Association, which was scheduled for late July, was postponed indefinitely. There may not be another session until the September quarterly gathering owing to the absence of many of the members who now are on vacation. The July quarterly session scheduled for last week was postponed as very few appeared at the Club Rooms of the Down Town Club, so President W. S. Wilcox announced its adjournment until a later date or until September when the regular quarterly Fall session will be held.

Universal Paper & Twine Co. Stocks Sold

Under the action of receivers appointed by the U. S. District Court in bankruptcy proceedings against the Universal Paper and Twine Company, Delaware Avenue and Bainbridge street, the stocks of the company were sold under auctioneers hammer last week. There was considerable kraft disposed of, with a large quantity of finer grades of twines.

Myer Magil in the West

Myer Magil, head of the Penn Paper and Card Company, 410 Race street, is touring the West, taking in the sights in the Yellowstone Park and touring the Rockies, making stop overs at Los Angeles, San Francisco, Seattle and Portland on the Coast. He will return in mid August. While making the tour of the West he will visit paper mills and the jobbers in that section on a buying trip, combining business with pleasure.

Penn Paper & Card Co. Improvements

Having completely settled its business in the new large five story building, which the Penn Paper and Card Company bought last Spring at 410 Race street, the firm has since devoted efforts to improving its converting department. The new quarters, with 60,000 square feet of floor area, ample parking space near its own garage, and shipping platforms, have been equipped with another 63 inch Brown and Carver cutting machine, making three cutters now in operation, in addition to the rotary cutters. Another device installed in the converting department is that of a Langston Rotary with a Beck Machine Company sheeter, made by the Charles Beck Machine Company, Terminal Commerce Building, a subsidiary of the Charles Beck Paper Company. In the new quarters the Penn Paper and Card Company has combined its former separated warehouses and sales and business offices under a single roof. The increased area provided for additional stocking facilities of from 20 to 25 per cent over previous stocks. The heads of the firm are Myer Magil and Meyer Cohen, who have built up a broad distribution of fine papers and converted products linked with printers and allied industries supplies. The unique feature of the new location is that it provides unlimited parking space in the central city area and adjacent to the Philadelphia-Camden Bridge for the convenience of buyers in the city and from New Jersey.

Herman Schwartz Joins Schwartz & Co.

Herman Schwartz, brother of Samuel Schwartz, head and founder of Schwartz & Company, general paper dealers, 151 North 3rd street, has joined the firm and will conduct the sales department as its manager. The younger Schwartz graduated from the University of Pennsylvania in the June class and has been connected with the firm for the past month, learning the paper business from the ground up. The firm recently expanded its paper distribution to the fine paper and stationery division, after many years association with the wrapping paper and twine section. The younger associate will be sales manager for both departments.

New Paper Concern for Sandusky

[FROM OUR REGULAR CORRESPONDENT]

CORINTH, N. Y., August 3, 1931—Word has been received here of the formation of a new paper concern at Sandusky, Ohio, which is headed by Claude L. Hoag, a former resident of this place. While here he was manager of the South Glens Falls plant of the International Paper Company where he also learned paper manufacturing in all phases. Since leaving here he has held responsible positions with a number of paper concerns and until recently served as general manager of the Paper and Textile Machinery Company in that city.

It was learned that the new concern is to do business as the Avery Paper Corporation and Mr. Hoag has been elected president and general manager. Associated with him in the venture are M. L. Rankin, J. H. Salisbury and J. T. Begg. The company is said to have a capitalization of $100,000 and a plant is now being made ready for the start of operations.

Investigate Dumping of News Print

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 5, 1931.—While officials of the Customs Bureau, Treasury Department, refuse to discuss the matter for publication, it is understood that complaint has been lodged of the alleged dumping on the United States market of news print paper from Germany.

It is stated that no dumping notices have been issued at the ports of entry but that nevertheless inquiry has been going on for some little time in connection with the complaint. It is understood that the investigation is to be expedited and that a report will be made on the subject within the next thirty days or so.

Brighter Outlook for Great Lakes Paper Co.

Organization Believed to Have Legal Claim to Proportion of Tonnage Under Sales Agreements Made On Behalf of Affiliated Enterprizes By Backus-Brooks Interests—Certain Contracts Reported Guaranteed By Subsidiary Companies

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, ONT., August 3, 1931—Canadian banks rank as ordinary creditors with respect to advances to Great Lakes Paper Company made prior to the receivership of that company. Inasmuch as bank loans are known to aggregate several million dollars, the fact that the leading banks did not secure their loans under section 88 of the Bank Act is of importance to the holders of the $10,000,000 of first mortgage bonds. The exact amount of the bank loans and other debts of Great Lakes Paper Company will be made public within the next couple of weeks, it is stated. G. T. Clarkson, of Clarkson, Gordon, Guilfoyle & Nash, Toronto, recently made a report as of March 31, 1931, of the affairs of the Great Lakes Company. This was done on behalf of the National Trust Company, receiver, but an abstract of it will not be available until the figures have been checked by the representatives of the former management.

$15,000,000 in Current Liabilities

Minnesota and Ontario Paper Company receivership, which involved Great Lakes, because of the interlocking control, through Backus-Brooks Company, of Minneapolis, is known to have trade and bank obligations totalling $15,000,000. The bank loans are a substantial proportion of this total and Canadian banks are involved. It is a debatable point as to whether or not the bank loans of Minnesota and Ontario Paper are secured or whether the banks' position is the same as that of the ordinary creditors. Section 88 of the Bank Act, which, then invoked, specifically secures bank loans with inventory and other floating assets, would not apply to a United States company, but it is understood that certain loans were not made directly to Minnesota and Ontario Paper Company, but instead to one or other of the subsidiaries incorporated in Canada. Funded debt of Minnesota and Ontario totals $25,000,000 so that the ranking of the bank loans totalling several millions is of prime importance to security holders.

Mill Operates Five Days Weekly

It is doubtful if the receivership of Great Lakes Paper Company can be lifted and the mill operated on a basis which would permit the payment of interest on the $10,000,000 of bonds. Much depends on what arrangements can be made for the allocation of tonnage. Great Lakes was operating five and a half days per week right up to the time of the receivership and has been operating five days since. Since it is one of the most modern low cost mills the scale of operations reassured security holders that bond interest was being earned and could be paid. The trouble arose because Great Lakes was making paper for Minnesota and Ontario because its costs were lower and it was not receiving payment for the work done. The accounts receivable became frozen with the receivership of Minnesota and Ontario.

Payments Being Made in Cash

Since the reopening of the Great Lakes mill under the receivership payments have been made in cash to National Trust Company as trustee and receiver. Whether or not a sufficient profit will remain for bond interest is yet to be determined. It is believed the Great Lakes Company has a sound legal claim to a portion of the tonnage under the sales agreements made in behalf of the affiliated enterprises by the Backus-Brooks interests. It is pointed out that certain contracts made by Backus-Brooks Company were guaranteed by subsidiary companies. In one instance for the delivery of 5,000 tons of news print annually to the *Kansas City Star*, four companies, the Minnesota and Ontario Paper Company, Fort Frances Pulp and Paper Company, Kenora Paper Mills, and Great Lakes Paper Company, were parties to the contract. It is contended in behalf of the Great Lakes Company that whatever may be the reorganization plans of the affiliated companies, Great Lakes Paper Company is entitled to a portion of this and other tonnage. Heretofore the impression has been that the sales contracts had been either in the name of the Backus-Brooks Company or the Minnesota and Ontario Paper Company and that Great Lakes was receiving only such business as the Minneapolis interests cared to give it.

Canadian Holdings Large

Canadian investment interest in both these enterprises is confined to the first mortgage bonds. Minnesota and Ontario has other funded debt, some $3,500,000 of 6 per cent gold notes which have been default as to both principal and interest since March 1, 1931. Of the $25,000,000 of first mortgage bonds of Minnesota and Ontario Paper, it is estimated that between $7,000,000 and $8,000,000 are held in Canada.

J. H. Black Retires from Ontario Power

J. H. Black, formerly vice-president of Ontario Power Service Corporation, has resigned from that post to head the Dominion Construction. His position on the board of the power company has been taken by L. R. Wilson, who is also vice-president and managing director of Abitibi Power and Paper Company. Mr. Black also occupied the position of assistant to the president and power manager of Abitibi Power and Paper Company and from this position has also resigned. Mr. Black has long experience in the news print and power field. Abitibi is at the present time running two of its news print mills at full capacity. These are the Iroquois Falls, Ont., mill, with a capacity of 600 tons of paper daily, and the Manitoba Paper Company mills at Pine Falls, Man., with a capacity of 250 tons daily. As the company's news print capacity is 2,200 tons daily, the ratio of production to capacity is about 40 per cent. The two mills now running are two the company's lowest cost producers. The mills that are idle are the three mills of the former Spanish River Pulp and Paper Company at Espanola, Sault Ste. Marie, and Sturgeon Falls, Ont., the Ste. Anne Paper Company mill at Ste. Anne de Beaupre, Que., the Murray Bay Paper Company mill at Murray Bay, Que., the Thunder Bay Paper Company mill at Port Arthur, Ont., and the Fort William mill. This is the slackest season of the year for news print operations and the operation of only two of the company's mills does not represent permanent policy. When fall and Christmas advertising volume increases and there is a large demand for paper, other mills will be opened for part time or full time operations.

Sault Ste. Marie Mill to Re-open

Announcement was made on August 1 by the Hon. William Finlayson, Ontario Minister of Lands and Forests, that the Abitibi Power and Paper Company would recommence operation of its Sault Ste. Marie news print mill on September 1. Operation will be on a 100 per cent basis. The mill, which has been idle for practically the past nine months, gives employment to some 1,000 men, plant workmen and bush help, in the summer months, and around 1,200 men during the winter. Mr. Finlayson's announcement which came close on the heels of a morning conference with Alexander Smith, president of the Abitibi organization, is the culmination of many weeks of effort and pressure on the part of the Ontario Government to have the company's closed plants reopened, and the attendant employment spread as evenly as possible about the Province, and, it is understood, forecasts a further operating program from the Abitibi company.

Mr. Smith is reported to have submitted such a program to the Government with the understanding that it will be carried out as early as possible in the fall. The Sault plant reopening will come as good news to the North country. During the past three months a number of deputations have approached the Government asking for help in meeting unemployment situations created by the suspension of news print operations. Feeling at the time ran high and from various quarters has come the urge for a special unemployment session of the Provincial Legislature, unless conditions were remedied. Not so long ago the sulphite pulp plant of the Abitibi at the Sault was reopened to handle a contract, and aid for jobless was provided through this action.

Notes and Jottings of the Trade

Robert Currie, of the Dominion Paper Company, Ltd., Montreal, was a recent visitor in Toronto.

The latest sampler of Provincial Paper, Ltd., is a broadside entitled "Sailing Ahead to Good Times," Printed on Oxford Book it is an artistic production with its cover containing a beautiful bit of printing in color in the form of a full-rigged ship and an inside two-page picture of the *Empress of Britain*.

A painful accident happened to W. B. Christie, general superintendent of Hinde & Dauch Company, Toronto, a few days ago, when he had the misfortune to break a collar bone while working at an elevator. He is progressing favorably after having spent some days in hospital.

Many friends of W. J. Trimble, the well known paper mill contractor, will regret to learn that he is seriously ill in Wellesley Hospital, Toronto.

Dr. C. D. Howe, Dean of the Faculty of Forestry, University of Toronto, and chairman of the Forestry Board for the province of Ontario, is spending his summer vacation in Vermont with his family.

Employees of the Alitibi Power and Paper Company at Iroquois Falls have been asked to take a five per cent cut in wages effective August 1. The unions have objected and request that a conference be held to avert a strike. The matter is still in abeyance.

American Lakes Claim Infringement

Notice of infringement of Seaborne marking roll patent has been served on Nekoosa-Edwards Paper Company, Port Edwards, Wis., by the American Lakes Paper Company, Chicago, Ill. The latter company is the owner of the Seaborne patent, which provides means to mark designs in paper.

Boston Paper Trade Happenings

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., August 3, 1931.—Colonel Edgar Smalley, managing director of Edwin Butterworth & Co., of Manchester, England, is visiting on this side and as a result of his trip here the subsidiary division of E. Butterworth & Co., Inc., has decided to close the New York office, at 1123 Broadway. In the future the American business of the company, a Massachusetts corporation, will be handled from its main office in Boston. At the annual election for the ensuing year the personnel of the officers, which follows, was somewhat changed: Charles H. Wood, managing director; Horace B. Sargent, president; Gordon E. Emerson, treasurer; Herbert B. Hollis, secretary and assistant treasurer. E. Butterworth & Co. reports an improvement in its business in paper stock, noting that a few commodities are being sought more than for some time, although conditions in general have not shown a great improvement. The associates of Mr. Wood at the office of E. Butterworth & Co. welcomed him back to the office, Friday, after an absence of a number of weeks on account of illness, and his many other friends are again greeting him.

Carter, Rice & Co. Corp. have taken the agency for Gettysburg Ledger, a new low-priced mill watermark line, made by the Groveton Paper Company, Groveton, N. H. This paper establishes a new low-price level for a watermark ledger. It is suitable for office and factory forms, machine bookkeeping, bank work and other purposes in which price is an important consideration. Among its qualities are evensidedness and resistance to tear.

Harrie E. Waite, merchandising manager for John Carter & Co., Inc., is expected to return this week from a vacation at Morgan, Vt., to which town he motored, accompanied by his family. They visited his son in Concord, N. H., the first days of his vacation. Max Frank, buyer of book paper for many years for the same firm, left Saturday, accompanied by his family, for a two weeks vacation at Hough's Neck. Mr. Frank has been in very good health since his recent illness.

John F. Wilson, advertising manager, Carter, Rice & Co. Corp., has returned from a vacation at Pipe Bay, Conn. R. H. Welch, merchandising manager in charge of ledgers and bonds, with the same company, left for a vacation Saturday.

Warren E. Thompson, salesman for Baird & Bartlett Company, is passing a two weeks' vacation at Long Lake, Me., where his family are staying two months.

William H. Walpole, manager, Rutter & McNaught, Inc., has returned from a vacation at Madawaska, Me., where he visited the plant of Fraser Paper, Ltd.

Shipments of the Middlesex Products Company, manufacturers of box papers, were very heavy for July and are increasing.

A. P. Mitchell, of the Riegel Paper Corporation, Milford and Riegelsville, N. J., with main office in New York, called on the trade last week.

Goes With Fine Writing Department

[FROM OUR REGULAR CORRESPONDENT]

HOLYHOKE, Mass., August 4, 1931.—Hayward Beatty, formerly with the sales department of the American Writing Paper Company, Inc., and also with the Collins Manufacturing Company at a later date has been promoted to the fine writing paper department of George W. Millar & Co. of New York City, according to announcement made by J. C. Mallelieu, president of the Millar Company.

Activities of Fox River Valley Paper Mills

Construction of New Addition At Thilmany Pulp & Paper Co.'s Kaukauna Plant to be Started August 15—With Completion of Work, All Operations Are to be Concentrated Under One Roof—New Paper Chemistry Institute Building Nearly Ready

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., August 3, 1931.—What attitude paper mills should take towards reforestation practices on their own behalf is given a rather conclusive answer in a report made to the Timber Conservation Board recently by W. A. Munro, general manager of the Munising Paper Company, Munising, Mich. Mr. Munro points to the present system of timber taxation as an obstacle of importance to such forestry efforts, but ventures the suggestion that wood using industries combine their holdings and log them jointly so as to avoid waste and reduce costs.

Best estimates show that reforestation returns range from a maximum of thirty cents per acre per year for jack pine on the best sites, to five cents for aspen on the poorest sites. The minimum cost of forestry practice is fixed at 40 cents, 20 cents of which is for taxes, 3 cents for protection, 10 cents for capitalization, 2 cents for losses and 5 cents for administration. Then Mr. Munro states:

"It will be seen that forestry practice by paper mills is bound to be a losing venture in the lake states. It can be made practical only by the ability of the timber to command a greater stumpage value, or by the lowering of the present tax on growing timber. This tax represents over 50 per cent of the total cost of growing timber.

"Then, too, every paper mill faces the possibility that science may find a substitute for wood in the manufacture of paper, or even a substitute for paper itself. If a cheaper and better substitute for wood in manufacture can be found, the mill with a large part of its assets in pulpwood lands will be facing a very sad experience.

"Pulp mills in the lake states have suffered severely from the competition of forest products manufactured in other parts of the country and abroad and shipped into this territory. When a mill finds that it can contract for several years' pulp supply at a saving, it will naturally discontinue the manufacture of pulp. This inter-regional and foreign competition has resulted in the closing of several of the lake states pulp mills.

"A consolidation of timber holdings is advisable by wood using companies in the lake states district. Utilizing as they do different types of wood, the stands could be cut cleaner at a much lower cost per unit, and the resultant growth would not be dominated by undesirable species. Furthermore, concerted action to balance production within the industry is called for. Overproduction discourages private efforts in forestry, especially on lands where the growth is slow and the returns more or less uncertain. Public land timber should be held as a reserve and an equalizer of production and demand, in such a way that fair and reasonable prices can be maintained."

Education of Paper Mill Workers

Paper mills of the Fox River Valley will be used as the basis of a national program for the education of paper mill operatives. The federal board for vocational education has decided upon the valley as the location of a survey started by Frank Cushman and six assistants because of the diversity in the pulp and paper industry found there. Mr. Cushman is chief of the division of trade and industrial education of the federal board.

The organization is already at work and will make a close study of the methods used in each mill in the valley. Data will be compiled on working conditions, education, responsibilities and other information essential to the preparation of vocational courses.

Choice of the Fox River Valley for the survey resulted from a report prepared by H. G. Noyes, itinerant coordinator of pulp and paper study courses for the Wisconsin Board of Vocational Education. As chairman of the educational committee of the Technical Association of the Pulp and Paper Industry, he submitted to the federal board a summary of his work in Wisconsin and considerable information about the field. The decision followed to obtain the data in Wisconsin.

Barchard Addresses Commerce Chamber

Reduction of wages in the paper industry and in all other lines as well is seen by John L. Barchard, president of the Hummel & Downing Company, Milwaukee, manufacturers of cartons and containers. In a recent address as president of the Wisconsin Chamber of Commerce, he declared that American economic machinery is so synchronized that with lower price levels for basic products and finished goods, there ultimately must follow a lowering of wages. This ultimate reduction of wages, he said, would bring all raw and finished products and wages down to a "common denominator as measured by the buying power of the dollar." Present social conditions, however, may make it desirable at least partially to postpone this adjustment of wages.

Thilmany Pulp & Paper Developments

Construction of the addition at the Thilmany Pulp and Paper Company, Kaukauna, Wis., to house the Wisconsin division of the tissue mill to be moved from Appleton, Wis., will be started August 15, according to M. T. Ray, an official of the company. The work is expected to be completed before January 1, 1932, so operations may be started under the new plan of having the plant all under one roof. The turbine room of the sulphate pulp mill will be lengthened so the two machines to be moved from the Appleton mill can be installed there and connected with the wet machine room. The addition will be of brick and steel. When the arrangement is completed, the two machines will produce forty tons of paper daily. The company previously used lapped pulp shipped from the Kaukauna mill, and the change will eliminate the transportation to Appleton and enable the company to use slush pulp right from the sulphate mill.

This move was accompanied by rumors that the Thilmany company would move its bag mill from Waukegan, Ill., back to Kaukauna. W. F. Ashe, another company official, stated that there had been some thought and discussion of this, but the economics of the question required very serious study before such a move could be proposed.

Forest Fire Spread Prevented

Two thousand acres containing some valuable timber

located near the Moquah national forest at Washburn was destroyed by fire last week. The federal forest unit was threatened but the spread was prevented by a force of thirty forest rangers. Approximately 3,600 acres in the Moquah forest will be planted to trees next year, according to the plans of Donald R. Ball, ranger in charge. The present total of planted acres is 1,660. Nurseries at Rhinelander and Cass Lake are growing the seedlings and are rapidly reaching their capacity of 15,000,000 seedlings. Prison labor will be used on forestry work in some sections, through action approved by Gov. Philip LaFollette, of Wisconsin. A camp has been established for these men at McNaughton, near the Rhinelander nursery.

News of the Industry

Most of the exterior construction has been completed on the new building at Appleton, Wis. for the Institute of Paper Chemistry of Lawrence College. The building is two stories high and has an attractive stone front. Interior work is now in progress, including plumbing, painting and plastering and the building will be ready for occupancy the latter part of September.

Paper mills at Appleton, Wis. are operating on full schedules, according to a report made to the state department of employment. One has increased its force. Conditions are reported fairly satisfactory.

All of the steel sluice gates are now in position at the new power dam on the Fox River at Kaukauna, Wis. The coffer dams will now be removed and dredging will be started for the two long spillways.

Formal opening of the A. R. Timberman Corporation, manufacturers of printing ink, took place at Menasha, Wis., last week. The company recently moved all its machinery from Milwaukee and has begun production under the management of Howard Confield. Twenty men are employed.

Employees of the Hoberg Paper and Fibre Company, Green Bay, Wis., enjoyed a picnic on Saturday afternoon of last week. A parade preceded the activities at the local fair grounds, with many attractive floats in the procession. Millwrights of the Hoberg division and the fiber division opposed each other in baseball as a feature of the event.

Emergency crews of the Fox River Paper Company, Appleton, Wis., were used to good advantage last week when an old flume washed out from an embankment of the Fox River and threatened to drain the government canal and cause other damage to power equipment, possibly flood buildings and disable the paper mills in that section. A coffer dam was built before the water could break away and the flume is now being filled with earth.

Judson G. Rosebush, president of the Patten Paper Company, Ltd. and vice president of the Northern Paper Mills, is a member of the national conference committee in charge of the industrial conference on human relations to be held by the national Y. M. C. A. at Lake Geneva, Wis., August 26 to 29. Industrial leaders from all over the country come to the camp to spend several days going over problems of employment and welfare of employees.

While wiping parts of a paper machine at the Bergstrom Paper Company, Neenah, Wis., Louis Christenson had his arm and hand drawn around a shaft. The arm was broken but there were no other serious results.

New York Trade Jottings

Madison Paper Box Company, of Brooklyn, N. Y., has filed a petition in voluntary bankruptcy, listing liabilities of $6,806. Assets are not stated.

* * *

Bedford Pulp and Paper Company, Richmond, Va., has been elected to membership of the Swedish Chamber of Commerce of the U. S. A., with headquarters in the Chrysler Building, 405 Lexington Avenue, New York.

* * *

Eastern Manufacturing Company, with sales offices at 230 Park Avenue, New York, has appointed the Harlem Card and Paper Company as distributors of Atlantic Bond, Ledger and Text, as well as Volume Bond and Ledger.

* * *

D. E. Lauderburn, extension forester for the State of Mississippi, and formerly forester of the Pejepscot Paper Company, has been visiting his many friends in Ney York, *en route* to the State of Maine, where he is spending his summer vacation.

* * *

Robert Karlberg, B. A., civil engineer, of the Holmens-Bruk Company, of Norrkoping, Sweden, who has been visiting his organizations' news print paper clients in the United States, and also many leading paper mills in this country, during the last three months, sailed from New York for Sweden last Friday.

* * *

The Major Paper Corporation, of 259 West 10th street, New York, has been chartered under the laws of the State of New York, with a capital stock of $50,000 preferred and 1,000 shares common. The new organization possesses 55,000 square feet for warehousing, an experienced sales force, and a complete line of various papers. The officers of the company are: G. A. Knoche, president; C. E. Mack, vice-president and manager; J. R. Williams, treasurer and H. J. Simmonds, sales manager.

American Salpa Corp. To Be Sold

The assets of the American Salpa Corporation, Spotswood, N. J., approximating $3,500,000 are to be sold at receivers' sale. The company owns about 64 acres of land and a modern plant built in 1929 consisting of 21 separate buildings of steel, brick and concrete construction, with Pennsylvania railroad sidings, artesian wells and other water facilities, capable of supplying ten million gallons of water per day. It borders on tidewater stream. The plant is adaptable for the manufacture of paper container board, transparent cellulose, leather and kindred products. It is equipped with machinery of the most modern type. Labor conditions are said to be excellent.

The mill has been manufacturing artificial leather and contains two Fourdrinier paper making machines with auxiliary equipment.

Bids must be submitted on forms furnished by the receiver on or before September 1, 1931. Illustrated pamphlet, inventory and forms may be obtained on application to the Receivers, care of Isreal B. Greene, Lefcourt Building, Newark, N. J.

Chicago Paper Market Is Unusually Quiet

Reports Indicate Uncertainty and Spottiness of Many Divisions of Local Paper Trade—Demand for Book and Cover Papers Fairly Satisfactory, With Prices Generally Steady—Kraft Wrapping Paper In Excellent Request At Present

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., August 3, 1931.—The last few days have been unusually quiet as far as the Chicago paper market is concerned. Day to day reports indicate the uncertainty and spottiness of the entire market. The report—whether it is favorable or unfavorable—seems to depend entirely upon the day in which the paper merchant, in any line, is interviewed. Reports indicate that all but a very few plants are working on a five day week with here and there some plants operating six days. There continues to be plenty of optimism relative to the fall season. The reason for this seems to be threefold—first, the natural belief in a business pick-up "just around the corner;" second, the unusual number of inquiries which would seem to precede business revival; and third, the fact that stocks are so depleted that there must be some increase in buying to replenish them.

The kraft market here in Chicago is holding its own and the stabilized prices are making it possible for Chicago jobbers to place business on some sort of a stabilized basis. News print reports indicate about 58 per cent production. In the fine paper market the bombshell exploded in the form of recent price cuts seems to have quieted down though there is some criticism of the action. Ground woods are quiet. Book and cover papers are little changed over the last report, with prices fairly firm and demand about as good as could be expected at this time. Waste papers are feeling the summer "doldrums" along with higher grades.

Paper Bag Trade Buoyant

A report from the Peoria Association of Commerce to the Illinois Chamber of Commerce on general conditions in that vicinity indicate that the paper bag trade in that city is one of the bright spots in the somewhat cloudy industrial horizon. The opening of the Peoria River Terminal, an important step in Illinois waterway development, is going to be of genuine value to paper and paper by-product manufacturers in that city. Paper manufacturers, in general, have been active in waterway development because of the lower freight rates on raw materials to be brought about by waterway transportation.

Container Corp.'s Earnings

The Container Corporation of America for the quarter ended June 30 reported a net loss of $44,083 after interest, depreciation and other charges as compared with a net loss of $124,518 in the preceding three months and a net profit of $180,796 in the second quarter of 1930, equal after preferred and class A dividends to 6 cents a share earned on 582,789 shares of class B stock. For the six months ended June 30 the net loss was $168,602 in contrast with a net profit of $316,183 in the same period of 1930 or equal to 4 cents a share on the class B stock.

News of the Trade

The annual golf outing of the Chicago Paper Association will be held on August 10 at the Bunker Hill Country Club, Chicago, one of the sporty clubs of the Chicago district, according to William J. Shapland, of the Fred Rentz Paper Company, chairman of the entertainment committee of the association. A number of the coarse paper merchants will be out at the club as early as ten in the morning tuning up for luncheon and for the regular golf competition in the afternoon. A dinner that will be sufficient for the most hungry golfer is promised for the evening. The event is one of the popular affairs of the entire season.

Basic Fables No. 4, one of the interesting series sent out by Hollingsworth & Whitney describing Basic Bond makes its appearance in the Chicago market through the Dwight Bros. Paper Company and the Whitaker Paper Company, Chicago distributors. Basic Fables No. 4 tells of the "Blackamoor Who Retained His Hue" who was scrubbed so hard by his unknowing new master. The main copy stresses the long experience back of the manufacture of Basic Bond and gives an interesting story of the purposes of the Bond, its usefulness in each instance and its remarkable qualities that make it popular. Color plays an unusual part in making this fourth of the series most fascinating and readable.

Fifty-two paper salesmen, guests and out of town visitors, attended the July golf outing of the Salesmen's Association of the Paper Industry held at the Westmoreland Country Club on July 24. The attendance set was quite a record. It seems as though when the salesmen hear the word "Westmoreland" they get busy, drop everything and go out to enjoy the fine, private course. A feature of the event was the attendance from out-of-town. The luncheon at noon and the dinner in the evening were, of course, high spots in the day's entertainment. Warren Moore and Henry Johnson, of the Brown Company, and members of Westmoreland, were on hand to do a good job in receiving new comers to the course.

Cost of Producing Casein

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 5, 1931.—A cost of production survey of casein in the United States is being started this week by two crews from the United States Tariff Commission in connection with the Senate resolution calling for a report on the subject. Nothing has yet been said regarding a foreign investigation.

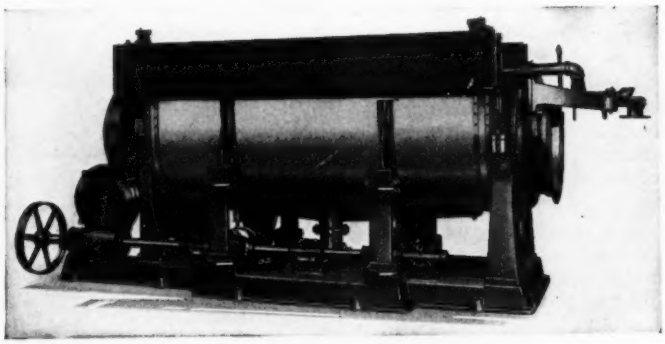
It is known that Senator Shortridge of California, who introduced the resolution did so without consultation with the farm milk interests. They are understood to be opposed to the investigation and it is reported that they will do everything possible, to have the action rescinded at the coming session of Congress. They are expected to be successful.

Get Patent on Multiwall Bags

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., August 3, 1931.—A patent has been issued to Thomas E. Coty and Alfred C. Coty, of this city, for their invention of an apparatus for preparing blanks for multiwall bags. A number of patentable claims are recognized in the invention. The claim for a patent was filed in November, 1929.

For New QUALITY



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4986

L. P. Belnap to Head New Corporation

Montreal and New York Industrialist To Be President of Company Which Will Take Over Canada Power & Paper Corporation Under Sponsorship of the Securities Protective Committee—Belgo Shareholders Continue Their Opposition to the New Plan

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., August 3, 1931.—L. P. Belnap, well-known Montreal and New York Industrialist, has been selected for the presidency of the new corporation which is to take over the Canada Power and Paper Corporation under the sponsorship of the Securities Protective Committee of which the Hon. Charles Dunning is chairman. The official announcement of the appointment awaits the formal action of the Committee when it is definitely indicated that a full majority of securities from each of the constituent companies has been placed on deposit with the committee.

The proposed president of the new corporation has built up a reputation for organizing ability, and although his chief interests are in the United States, he is a Montreal citizen, maintains a residence here, and is vice-president of the Rudel Belnap Machinery Company, Ltd., of this city.

In New York, Mr. Belnap's first claim to prominence is as president of the Worthington Pump and Machinery Corporation, whose stock is one of the favorites on the New York Stock Exchange. In that centre, he is equally well known as president of Rolls-Royce of America, Inc., makers of one of the world's most expensive limousines.

Mr. Belnap is also a director of United Dry Docks, Certainteed Products and U. S. Hoffman Machinery Company, all of New York. He is a director of Worthington, Simpson, Limited, of London, England, and Investment Foundation, Limited, an investment trust with local sponsorship.

Born in the state of Michigan, Nov. 7, 1877, Mr. Belnap was educated at the University of Nebraska, graduating with a Bachelor of Science degree.

During the war, Mr. Belnap was assistant director of War Supplies (British War Mission) at Washington.)

Belgo Shareholders Continue Opposition

John Stadler, the chairman of the special committee of the Belgo Committee Paper Company's preferred shareholders, has issued on behalf of the committee a letter urging shareholders of the company not to deposit their shares for exchange into the shares of the proposed new company for the reorganization of the Canada Power and Paper Corporation. The letter states:

"The committee has received several requests from shareholders asking for information regarding the extension date announced by the Security Protective Committee, and how this affects the shareholders who have not deposited their shares.

"In the report of the meeting held on July 9, 1931, sent to you last week, the opinion of our counsel was given to you in which it was pointed out that whether you deposit your stock or not you will ultimately receive in satisfaction of your legal right as shareholders substantially the same consideration as those of the preferred shareholders who in fact have deposited their preferred shares before July 15, 1931, and the same also applies to any extensions thereof. Therefore, it is our opinion that your interests will be best served by holding on to your stock, and not to deposit same.

"In the report sent to you last week you will please note that at the preferred shareholders' meeting held on July 9, a resolution was passed authorizing your committee to request from the Securities Protective Committee copies of records and data used by them so that your committee could go over same and point out the discrepancies that must exist, as otherwise the award for Belgo preferred shares could not possibly have been such as is given in the plan.

"Our legal adviser made an appointment with the Security Protective Committee and your chairman together with our counsel met the Hon. Chas. A. Dunning, chairman of the Security Protective Committee, and their counsel, Hon. J. L. Ralston, K. C., who informed us that the Security Protective Committee had held a meeting the previous day and it had been decided that no further information or data used in preparing the plan dated June 2, 1931, was to be given out. Your committee is exceedingly sorry to report to you such an attitude on the part of the 'Securities Protective Committee' and it appears to your committee, as authorized representatives for the protection of your investment that you, as the party who has paid the money for the Belgo preferred stock, on which now no interest is being paid and for which you have been offered three shares of doubtful value, are entitled to receive at least $60 of the new bonds for each $100 of your present preferred shares and five shares of the new company's common stock.

"It appears to your committee that until such time as the Securities Protective Committee furnish the information used in preparing their plan, so that your committee can check it over, the basis of calculation of relative values of your preferred stock should be taken as that given in the report submitted to the preferred shareholders' meeting held on July 9, which is $67.28 in new bonds plus a proper participation in common shares."

Riverbend Mill Closed for Month

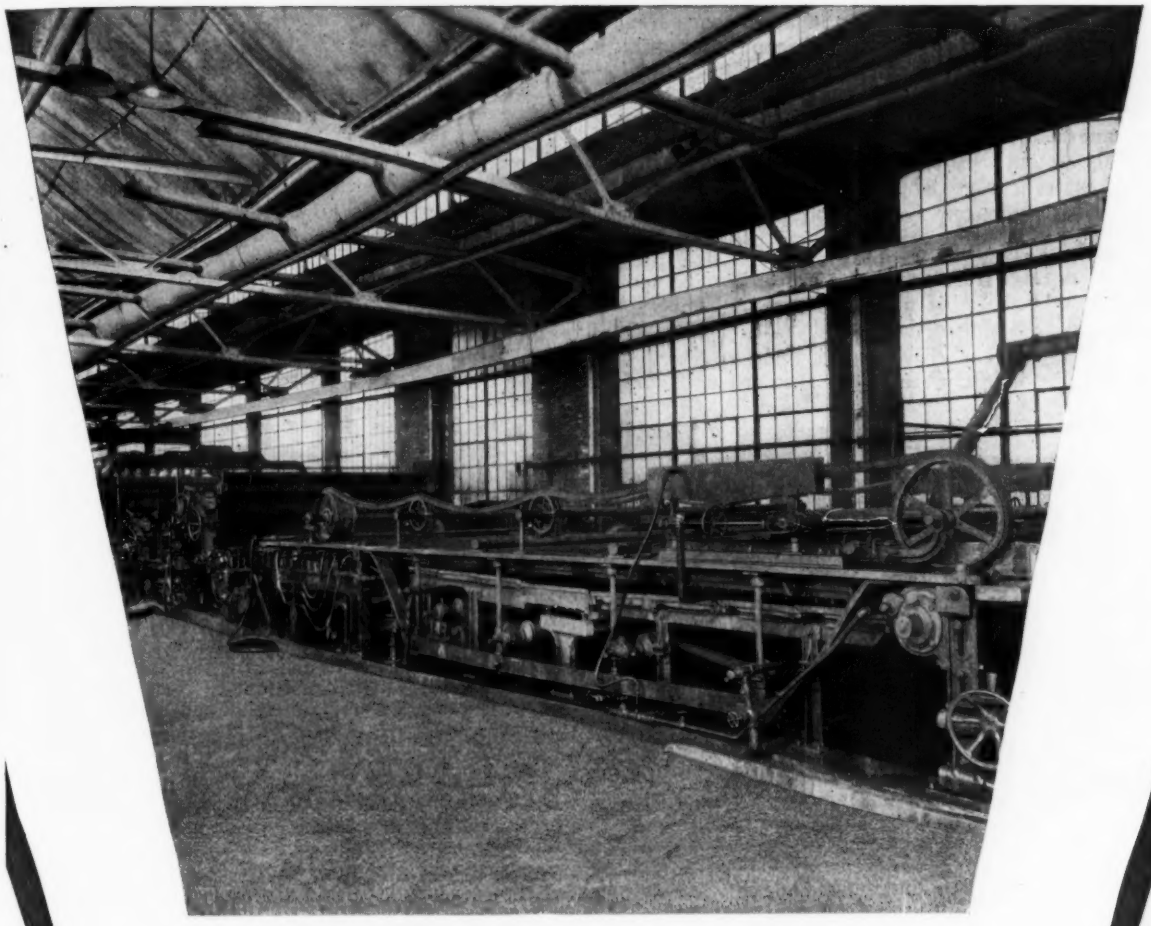
Price Bros. & Co., of Quebec, have decided to close their news print mill at Riverbend for three or four weeks, owing to shortage of orders. Most of the employees are being transferred to the Kenogami mill. The Riverbend mill is the most recent addition to the Price news print plant. Built in 1925, it was enlarged in 1926 and in the early part of 1929 capacity was doubled, bringing output to 480 tons daily. This compares with a daily capacity of 550 tons at the Kenogami unit.

Pacific Mills Makes Profit

The statement of Pacific Mills, Ltd., for the 16 months' period ending April 30, 1931, shows net profits of $625,267, which compares with $356,563 in the calendar year 1930. Operating profits totalled $2,382,798. After provision for all charges, including preferred dividends, there remained $445,510 applicable to the 75,000 common shares of $100 par value outstanding. This was the equivalent of $5.94 a share.

Pacific Mills is a subsidiary of Crown-Zellerbach Corporation, one of the largest news print producers in the United States. The subsidiary company is expanding its operations through erection of a paper specilties plant at Vancouver.

DOWNINGTOWN



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Eleven years ago we built a Nine Point Straw Machine for the Hinde and Dauch Paper Co., and at the suggestion of their Vice President, Mr. Joseph Harbrecht, it was originally equipped with a Suction Couch, Suction First Press and Suction Second Press Roll. In 1920 this was the fastest machine in the world, making nine point straw. Today, in 1931, this machine is still the fastest and its limit has not yet been reached. Our Catalog No. 103 fully describes the advantages of the Downingtown Suction Roll. Write for a copy. The Downingtown Manufacturing Company, Downingtown, Penna.

ALASKA—A RESERVE FOR NEWS PRINT

(Continued from page 19)

ment is highly desirable. Their immediate achievement, however, is impossible without handicapping seriously the recovery of the continental industry, and without threatening the economic stability of other branches of the paper industry by an influx of producing capacity forced out of the manufacture of newsprint. It is by no means certain that Alaskan news print can compete in the important United States markets while manufacture in present mills must be so completely based upon timber policies that favor liquidation rather than continuous use.

In argument for postponing the two Alaskan projects which have been arranged by the Forest Service and for deferring other sales of national forest timber for pulpwood in Alaska and in the United States proper until a more propitious time, the economic background and conditions in the industry are briefly sketched under appropriate headings.

The North American Industry Operating at 70 Percent of Capacity

In 1930, 3,560,000 tons of the world's news print production of 6,985,000 tons were consumed in the United States. The United States industry contributed 1,282,000 tons or 36 per cent toward the domestic consumption; the balance was imported chiefly from Canada. Smaller tonnages were drawn from Newfoundland, Sweden and Fnland. The United States imports from Canada and Newfoundland amounted to 2,145,000 tons or 60 per cent of its consumption in 1930; the imports from overseas, constituting less than 4 per cent of the consumption, amounted to 134,000 tons. It is clear that United States consumption is chiefly dependent upon North American production. Although nearly 40,000 tons greater in 1930 than in 1929, the overseas imports are quantitatively insignificant; they are, however, important in their influence upon prices.

Although distributed between three separately constituted political units, the North American industry is essentially one industrial whole. It has one chief market, the United States. The same type of raw materials is converted by identical processes in the three countries. The United States industry is financed from domestic sources and 65 per cent or more of the capital invested in the Canadian industry is from the United States. No tariff barriers interfere with the free movement of the finished paper from producer to consumer; all are competitively accessible to United States markets. With these and other common factors the three units of the North American industry are bound together.

Although the operations in the news print industry have reached low levels of capacity during the business depression, it is clearly evident that the condition had its beginning long before the 1929 down turn in business. Nothing but an abnormal increase in demand could have prevented some form of recession.

News Print, Essential to American Business and Social Life

Since 1890 the consumption of news print in the United States has mounted steadily, rising from a per capita consumption of six pounds to a record in 1929 of 62 pounds. The reasons for this increase are bound up with the growth of the newspaper in the United States and with the better organization and lower cost of news print manufacture.

The newspaper is an institution not only for the dissemination of news but also for advertising the sale of goods. It is an indispensable instrument of marketing. As such it has become increasingly important in American business. This is amply illustrated by the trend of news print consumption. For instance, the United States used a little less than 600,000 tons of news print in 1900, but in the subsequent three decades the national use increased more than six times, establishing a record of 3,780,000 tons in 1929.

The use of news print grew as its cost decreased. Before news print was made from wood, it was never cheap. With the general use of wood pulp however, manufacturing costs were reduced, and with the installation of wider and faster machines, costs have been brought to a remarkably low figure. The newspaper has benefited from these changes; it has grown in importance as its needs for paper were met. It is, today, dependent upon a continuous, cheap supply of news print, but one that is sufficiently profitable to warrant further improvement and sound continuation.

News print manufacture is the best example of standardized, mass production in the paper industry. Its fiberous material is drawn chiefly from northern spruce and balsam fir forests. The wood is pulped in part by grinding and in part by cooking in chemicals. The resulting pulps, mixed in proper proportions, flow directly on to the paper machine by which they are converted into paper. Manufacturing efficiency demands a continuous, uninterrupted flow of materials into and through the mill. For this the industry is designed. The product is priced accordingly. Under these conditions mass distribution to the limit of production capacity is essential to commercial success if paper prices are to remain stable and reasonably low.

The United States Draws Upon Canada

Prior to 1913 the national news print requirements were met chiefly by domestic manufacture. Centralized in the Northeast and to a lesser extent in the Lake States, the industry drew the bulk of its pulpwood from nearby forests. At that time only 20 per cent of the domestic production was made from Canadian wood.

Canadian pulpwood became significant in the American industry in about 1895. Imports increased steadily until 1910 when a level of approximately one million cords a year was established. About one-quarter of the imports was used in the manufacture of news print paper. The Quebec embargo on the exportation of Crown Land wood in 1910 substantially restricted the pulpwood resources available to the United States industry, for at that time Quebec furnished the bulk of the pulpwood imports. Subsequently, the removal of the news print tariff completed the background for the development of a strong Canadian industry.

Because of its exacting wood requirements the United States industry naturally concentrated in the most accessible spruce and fir forest regions, the Northeast and the Lake States. Both regions, however, had supported previously and successively the bulk of the lumber demands of the United States. Although these demands were centralized largely in pine, much spruce had been cut for lumber, particularly in New England. As a result the already limited supply of spruce and fir was soon controlled by operating mills and further expansion to keep abreast of consumption was forced to depend upon imported wood.

The Quebec embargo and the removal of the United States tariff combined with the ever increasing consumption made necessary a geographical shift to new supplies of

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You can use this Soft Rubber Cover closer to the Core

SOFT RUBBER . . . "live" cushioning . . . from outer surface to metal core.

That, in a nutshell, is the Goodrich Vulcalock couch roll.

To gauge accurately its greater efficiency, its more marked economy, contrast it with the ordinary rubber roll with its base of hard rubber.

Sheer waste, of course, this foundation of "dead" rubber. It steals resiliency. And it shortens the life of the roll.

The Goodrich Vulcalock roll, on the other hand, not only gives more working cushion, weight for weight and diameter for diameter . . . but it retains its resilience, its cushioning effect, until it is worn down just as close to the metal itself as to the hard rubber layer in the ordinary roll.

Vulcalock couch rolls run truer. Give a fuller contact against the cylinder mold. They pick up the sheet more efficiently and take out more water. Endowed with greater toughness, greatly increased resistance to wear, they long outlast every other type.

An interesting story, this development of the Vulcalock process for covering paper mill rolls. The details as affecting worm rolls, felt rolls, and press rolls, as well as couch rolls, are outlined in literature available upon request. Address The B. F. Goodrich Rubber Company, Inc., (Est. 1870) Akron, Ohio.

The Old-Type Roll. Note the "dead" hard rubber base between the soft cushion and the metal core. Eliminating this hard rubber foundation, Vulcalock Couch Rolls provide more working cushion for a given thickness than you get in any other type.

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Couch Rolls · Press Rolls · Table Rolls · Wire-Carrying Rolls · Felt-Carrying Rolls, Both Plain and Wormed · Wringer and Squeeze Rolls

pulpwood. Canada was the logical choice. Here were not only vast areas of spruce and fir pulpwood but also ample power resources capable of development at low costs. Pulpwood could be river-driven from the interior to mill sites on the St. Lawrence River. Here mills could be located within easy reach of the larger consuming markets in the United States. Assisted lately by Newfoundland and by northern Europe, Canada has supplied the American consumers with all of their news print in excess of the tonnages used in 1913.

Canadian production increased 150 per cent between 1913 and 1920 and 210 per cent between 1920 and 1930. In the 1920-1929 decade, Canada produced a total of 15,986,000 tons of news print of which 14,522,000 tons were exported, chiefly to the United States.

The Expanding Industry

In the daily capacity of the new machines added each year in the North American industry from 1919 to 1930, the total increase amounts to 10,130 tons of daily capacity; 17 new machines were added in the United States with 1,235 tons of daily output; 91 machines were added in the Canadian industry with a total daily capacity of 8,335 tons; 6 new machines producing 520 tons a day have been added in Newfoundland. During the same period most of the machines that were in operation in 1919 have been improved. It is probable that production on these machines alone has been increased by 20 per cent.

The new machines and the speeding up of old machines has been offset in the United States by shifts in the type of production. Many eastern companies have been forced to seek higher realization on their pulpwood. This was accomplished by shifting to higher grade production, an adjustment process which created instability in these grades that has not yet been entirely overcome. Most of the new machines added to the United States industry in the past ten years have been installed in the Lake States and particularly in the far west where timber supplies are abundantly available.

In Canada machine installations show a rapid increase from 3 machines with 150 tons daily capacity in 1919 to a peak of 14 machines with a capacity of 1,485 tons in 1927. Since 1927, the trend of expansion has reversed, only one machine of 80 tons capacity will come into operation in 1931, and that will be in the United States.

As the installation of machines increased after 1926, the average rate of operation in the industry has decreased. It is evident that the expansion was carried too far. The causes are varied. Prior to 1926 the industry was reasonably profitable. Consumption had increased rapidly, production costs had decreased with the application of modern technique and mass production methods. At the same time the Crown Lands in Canada were being rapidly distributed by license. The licenses were made in most cases contingent upon the construction of production facilities within specified times. Under these conditions capital flocked to the industry and the Canadian provinces desirous of establishing industry and desirous of liquidating their large investments in timberland welcomed the opportunity. The far-flung machinery of expansion once under way could not be stopped. Even though the seriousness of the situation was known as early as 1928, long planned contracts and agreements had to be carried to completion.

News Print Consumption Approaches Saturation

Meanwhile changes have been taking place in the consumption of news print. In the number of printed pages in American newspapers of 100,000 circulation and over by months from 1926 to 1929 for both daily and Sunday issues the yearly average in the case of dailies was 30 pages per issue in 1926, 1927 and 1928. It increased to an average of 32 pages in 1929 but in 1930 it dropped three pages to 29. This is not particularly serious for there is little evidence that it will be permanent. But a somewhat different situation is shown in the Sunday issue trend. There has been a decrease from the 1926 yearly average of 111 pages to an average of 99 pages for 1930. This trend is distinctly downward; it is probably an indication of a permanent change which may account for a shrinkage in American consumption.

Circulations on the other hand, have tended to increase, although not substantially. Here as above, however, the Sunday issues show greater weakness than the dailies.

In the trend of newspaper advertising for the past five years the yearly agate lines of advertising in the newspapers of 30 leading cities in the United States show a decrease since 1928 when the all-time peak was established.

It is evident, of course, that these changes in consumption would affect the tonnage of news print paper consumed by individual publishers.

Although these data conflict to some extent, they do show weaknesses in the trend of news print consumption. The breaks in the trend courses that occurred prior to 1929 are probably significant of permanent change; the 1930 breaks may mean only a temporary set-back coincident with the reaction in business. Despite the conflicting evidence, however, it seems more than probable that the past upward sweep of the news print consumption trend in the United States will not continue but will tend to equal the trend of population increase. The newspaper itself is being subjected to the severe and new competition and the competition between the small and large size papers is by no means ended.

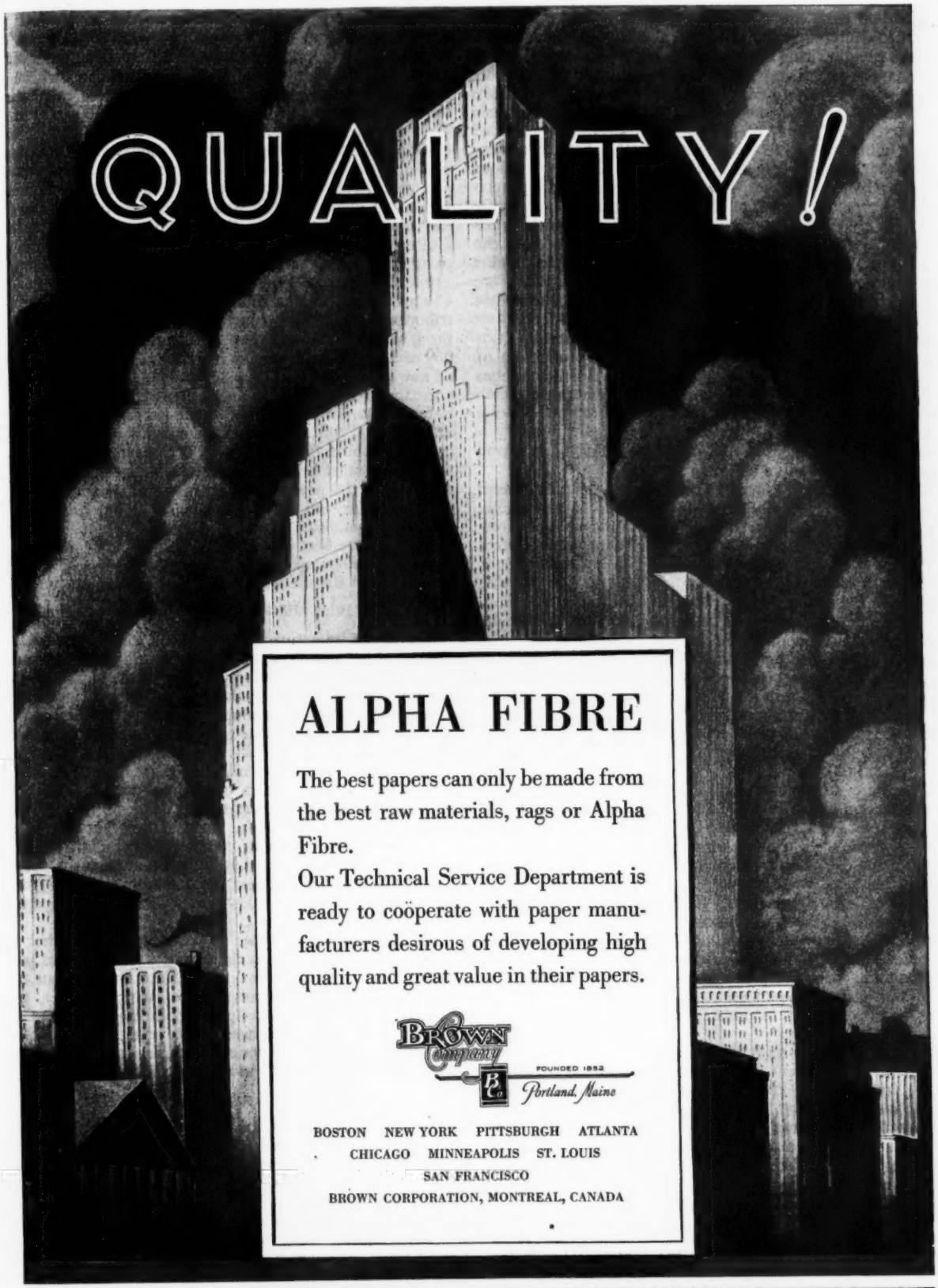
Pulpwood Supplies Are Ample

Although much has been said concerning the depletion of pulpwood, it is certain that there is no immediate danger of an exhaustion that will materially affect news print prices. The pulpwood requirements for news print are exacting, spruce and balsam fir in the East and Canada, and spruce, the true firs and western hemlock in the West. Formerly these species supplied the bulk of the wood needs for all kinds of paper. But shifts in production to other kinds of wood and to other regions has had the effect of increasing their availability for news print manufacture.

Critical studies of the holdings of news print companies indicate that most of them are amply supplied with wood reserves. This is true in the United States as well as in Canada. The holdings of some companies, of course, are not so advantageously situated nor so cheap to operate as others. Yet the spreads in pulpwood costs are not so great that many mills will be forced out of operation because of wood costs at present prices if reasonably full operation is possible. Few mills in the North American industry are dependent upon open market pulpwood, and few purchase wood pulp. Purchases of wood and pulp are usually confined to periods when open market prices are low.

As indicated previously the news print industry has been going through a series of transitionary phases since 1913. The mills that have been able to continue in news print production in the United States have been narrowed down to those that can compete. The Canadian mills on the other hand are relatively new mills, practically all of which are tied up with timber limits of sufficient area to meet wood requirements for an indefinite period. For instance, each of the five larger Canadian companies has over fifty years' supply of wood under immediate control.

Nevertheless, although declining at the present time,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BROWN CORPORATION, MONTREAL, CANADA

pulpwood costs are more apt to increase in the long run than to decrease. The causes in the United States center in the rapidly rising costs of land ownership occasioned by constantly increasing tax burdens and because private owners are forced to carry a disproportionate share of the cost of forest fire protection. In Canada costs are likely to increase as mills cut out the more accessible parts of their limits and are forced to reach farther back into those parts that are more expensive to operate. These conditions are not unique, however, for they have been reacting upon costs ever since forest land has been in private ownership.

They are bound to continue until pulpwood costs reach a point that permit forest replacement. In some cases the f.o.b. mill cost is today sufficiently high to make feasible certain types of reforestation and several companies are taking the necessary steps both in the United States and in Canada. But remote mills or those far removed from their timber supplies cannot now carry on reforestation; nor will they be able to until consumption and production of news print more nearly balance and the full advantages of capacity operation are realized. The extent to which news print companies have already taken forward-looking steps in reforestation gives evidence that the industry is thoroughly conscious of the possibilities of forest land management if and as conditions permit.

The most likely source of competition in the eastern markets from the standpoint of pulpwood is the South. Although news print is not now manufactured in commercial quantities from southern pine, extensive research gives evidence of possibilities. With its low wood costs, the South could be a serious competitor to the existing industry if comparable paper can be manufactured.

It is clear that southern competition, if it does develop, will not be based upon depleted supplies in the north or in Canada, but upon the possibilities for cheaper wood inherent in the excess supply, cheap labor, and low land values. Potential production in the South has the effect, therefore, of blocking price increases, which will undoubtedly deter further expansion in the North; and, furthermore, it may handicap mills in their progress toward sustained permanent operation.

There are, of course, many opportunities for expansion in production in the West. Much progress has been made in the use of western hemlock for news print. It is likely that a good sheet can be manufactured from hemlock without the use of spruce at all, if it has not already been done. The question, however, is not so much one of production as it is of markets. The industry is already so much over built that the chances of profit are not promising. The urge toward production of news print is strong, however, for with lumber prices falling as the national consumption decreases, private owners are looking, in fact many are forced to seek other means of liquidating long held investments in timber that now give no evidence of being profitable.

With the industry as it is now situated, with the possibilities of development in the South and in the privately owned forests of the West, there is no justification in opening up new timber at this time, particularly timber that is publicly held. Its immediate use in news print manufacture could not help but delay the more urgent liquidation of virgin timber and the establishment of sustained forest and manufacturing units on privately owned lands in the United States.

Capital Investments

The total capital investments in the continental industry exclusive of timberlands are not available. They may be approximated, however, by multiplying the daily capacity in each country by the estimated capital investment per ton of output. A conservative figure of $38,000 per ton is used in the United States and an equally conservative figure of $47,500 in Canada and Newfoundland where the mills are of more recent construction. These calculations show $575,000,000 invested in Canada, $210,000,000 in the United States and $45,000,000 in Newfoundland, a total of $830,000,000 for the continental industry. No data are available to show the additional investment in timberlands.

The American industry is entirely supported by domestic funds. It has been estimated that 65 per cent or more of the capital investment in the Canadian industry is from United States sources. A recent calculation by the Department of Commerce showed $280,000,000 of American capital invested in American controlled companies in Canada. It is known that much of the bonds and stock distribution of Canadian controlled companies was made in the United States. It is probable that well over $600,000,000 of United States money is invested in the manufacture of news print.

At the present time the annual return on this investment is far below normal and below the average of comparable industries. Profits have declined steadily with the increase in idle machine time. As it is organized, the volume of production must be maintained to make profit. Operating ratios below 80 per cent are so low that overhead charges mount, wiping out the profit chance. That this is not a temporary condition is clearly evidenced by the statistical data that have been presented. New capacity that would delay the absorption of idle machine time obviously delays betterment in the industry.

The News Print Mill—The Sole Support of Communities

Because of its nature the news print mill is essentially a forest industry in the sense that the mill itself is usually located in the forests. It is the center of the local economy. The mill employees live in the surrounding villages, farms are developed nearby to supply food products, and woods laborers, often times farmers in the summer, locate in the adjacent forest regions deriving their employment in preparing pulpwood for the mill. In short, most news print mills constitute the sole means of support for relatively large and far flung communities.

Complete paralysis of the community occurs when the mill shuts down. No other comparable means of employment exists. If the mill shuts down permanently, investments in homes are lost and the community disintegrates. Slow disintegration can take place when the mill operates on a part time basis.

Statistics are not available to show separately either the number employed solely in the manufacture of news print paper, or sufficient information to afford basis for an estimate. The number is known to be large, however, particularly if the woods workers and indirect laborers are included. By and large these people must move to other localities to obtain employment if their employing mill is unable to meet the competition of the industry.

Regional Supply and Demand

There is little inter-regional shipping of American produced news print, most of it being consumed in the region of manufacture. Canadian production is usually shipped directly south to the chief consumption centers over the international boundary. Some Canadian production is also shipped by water to the southern states. The south central states receive most of their supply from Ontario and Lake States mills directly north. The Pacific Coast production is marketed chiefly on the West Coast. Some news print is exported from British Columbia mills to the

Orient and some is shipped into the Gulf Territory where it competes with Ontario rail shipped paper and cargo shipments from Newfoundland and from overseas.

No West Coast news print has as yet entered the large markets of the East. The cargo rates via the canal, although low, are about twice the direct rail rates from Canadian mills to North Atlantic ports; there are even greater spreads between cargo rates from eastern tide water mills. The West Coast mills have a more advantageous competitive opportunity at the margins of the shipping territory of the northern mills. This is evidenced by the use of western paper in the Gulf region.

Possible Distribution of Alaskan News Print

With the Pacific Coast mills more than supplying the news print needs of that region, the distribution of Alaskan produced news print must either be made in other markets or an equal amount of other western paper replaced in western consumption by the Alaskan product, must be shipped outside the region. Regardless of the method of distribution, however, it is plain that Alaskan production will force the western industry to search for new markets. Despite the fact that western paper is already established in the Gulf markets, it is certain that triple the current shipments to that region could not be quickly and profitably marketed. As the marketing territory is expanded farther inland and farther north along the coast, the competitive advantage for western paper becomes constantly less.

It is not at all unlikely that greater quantities of western paper will in the future be marketed east of the Rocky Mountains. But the channels of distribution must be carefully planned and the volume offered must be restricted to definitely established opportunities for sale. A sudden increase in offerings, however, would naturally weaken the market and would undoubtedly react seriously upon the situation in the western markets, creating there greater instability than exists at present. Furthermore, heavy canal shipments to the East Coast would force eastern producers to ship to the Middle West. The general effect would be weakening of markets throughout the country, which would obviously affect all producers; no group of producers could escape some reaction.

It is difficult to see how Alaskan news print can compete in the larger markets of the Northeast when the nearer production of the West Coast has not yet been attracted to that market. If the usual conversion costs of $30.00 per ton and an assumed shipping charge of $12.00 per ton from Alaska to New York are subtracted from the contract price of news print in New York of $57.00 a ton, a residue of $15.00 per ton is left to cover wood costs, interest on investment and other overhead charges and profits. Interest and overhead range from $5.00 per ton in old mills to $18.00 in new mills and wood costs (one and one-half cords of rough wood per ton of paper) range from $12.00 to $24.00 per ton of paper. The f.o.b. mill price of pulpwood must indeed be low if Alaskan news print is to compete in eastern markets at present news print prices.

Alaska—A Reserve

It is plainly apparent that the United States needs for news print are amply met. The low production rates indicate large over-capacity in the continental industry. The financial status of many prominent producers attests the profitless condition of the industry. It is not clear how Alaskan news print can compete in markets not already supplied or capable of being supplied with production that is more soundly and more logically situated. The continental industry is equipped to produce 5,700,000 tons yearly, 1,700,000 tons more than the continent has ever used in any one year, and over two million tons in excess of the average use during the past five years. There is no need for expansion, especially in new regions remote from consumption centers until the excess facilities are reduced to normal.

It is true that Alaskan production would augment domes- their remote location plainly reserves for the future. Economically they are not immediate market threats. . Their premature development would deplete their usefulness as a reserve and make a bad market situation worse. There is no advanatge either to the publishers of the United States, to the people of Alaska or of the United States in the establishment of an industry of uncertain competitive chance.

It is true that Alaskan production would augment domestic production of news print. But that cannot be increased sufficiently to make the United States entirely self-supporting without price increases that would be prohibitory. There is no reason, moreover, why the United States should attempt self-sufficiency in news print on any other basis than sound economics.

Old Newspapers for China

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 5, 1931.—The United States supplied 97 per cent of the over-issue newspapers imported into Honkkong, China, during the fiscal year ended April 30, 1931, total receipts of which amounted to 26,545 short tons, according to a report received in the Commerce Department from Assistant Trade Commissioner Devid M. Maynard at Hongkong.

Most of these over-issued newspapers are re-exported to the coast ports of South China, and from thence a certain amount finds its way into the interior towns. Over-issue newspapers are in demand in China by the manufacturers of fire-crackers and tepees, by the poorer classes as a substitute for window glass, and by small shops to wrap up purchases. This latter use is by far the most important. The usual packing for newspapers for this market ranges from 200 to 560 pounds, wrapped in new burlap with steel straps. The most popular weight is 280 pounds. Specifications usually state that the newspapers must be new, strictly over-issue, free from pamphlets and rubbish. Local importers declare that the small newspaper, commonly known as the "tabloid press" is not suitable for this market and most importers refuse to accept anything but the standard size newspaper. Two grades are received in this market: the first all white, containing no colored or rotogravure sheets, and the second with an allowance of 3 per cent for colored matter.

Protest Gray's Harbor Tax Reduction

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., August 1, 1931.—When the Grays Harbor equalization board recently reduced by $200,000 the 1931 assessed valuation of the personal property of the Gray Harbor Pulp and Paper company at Hoquiam, Wash., a protest resulted. A few days later an appeal from this decision was signed by thirty-six other taxpayers of Grays Harbor county and filed with County Auditor Harold B. Kellogg for transmission to the state tax commission.

The appeal asserted that the reduction is unfair to other taxpayers as it will increase their levies for all purposes and relieve the pulp company from paying a rightful share. The appeal asks that the valuation be restored or raised as facts may warrant.

TAPPI to Inspect Kalamazoo Industries

Plans are progressing rapidly for the fall meeting to be held in Kalamazoo, Michigan, September 24, 25 and 26. Weekly meetings of the general committee are being held and the sub-committees in charge of arrangements report rapid progress in every case. The general outline of the program has been determined, and many interesting papers have already been scheduled. A general symposium has been arranged covering the problem of de-inking of waste papers and the disposal of the de-inking wastes.

Kalamazoo, two years ago, celebrated its century of progress, and in the intervening 102 years has had a steady and healthy growth. Titus Bronson was the first white man to establish his residence in what is now known as the Kalamazoo Valley. The city proper is entirely surrounded by hills the only break, being the path of the Kalamazoo River, from which the city and the surrounding country takes its name. The Indians of the Pottawatomie tribe were already settled in the sheltered valley when Bronson arrived, and early reports state that he found them very friendly and helpful in the early days. The name Kalamazoo is of Indian derivation and means, "Where the water boils in the pot." This meaning is applicable even today for as one approaches the city from any of the many roads and reaches the break in the hills the smoke from the many industrial plants, of the valley, makes the panorama appear as a huge boiling pot with the vapors passing slowly into the air.

By the first census in 1834 the population of the county, then 5 years old was 3124. By 1867 the village had been incorporated into a city and the population had increased to 7,150. By 1900 there were 31,031 residents, and at the last census just taken the population was in excess of 65,000.

Celery raising, which is one of Kalamazoo's best known industries, aside from paper, was begun in the low bottom lands as early as 1855, and the credit of raising the first celery goes to a man who at the time was an inmate of the State Asylum for the insane, which was established here about 1850.

Paper manufacturing first came to Kalamazoo in 1866 and the present site of the Kalamazoo Paper Co. was the beginning of an industry for which the city is known all over the country and which has grown during the past 65 years from nothing to some 14 large mills which produce approximately 900 to 1,000 tons of paper and paper products each day.

Kalamazoo is also the home of the Western State Teachers College which is recognized as one of the three foremost in the United States. It is situated upon one of the high hills and its campus is one of nature's works of art. A commanding view of the city is obtained from the hill and many say it is worth coming a long way to see.

Across on another hill stands Kalamazoo College which is the oldest college in Michigan not excepting the University of Michigan. At the present time three new buildings are in the course of construction, and these, together with several recently completed make it one of the most attractive and efficient educational institutions in the country.

For the air minded, the city maintains a 300-acre airport, which is declared to be one of the finest in the country, and which is the center of air mail routes in Michigan. Passenger lines operate daily to and from the city to all points east and west.

Kalamazoo has approximately 125 industrial plants manufacturing a diversified line of products. The Upjohn Company is one of the most interesting plants in the city making a widely diversified line of pharmaceutical supplies which have world wide distribution. The firm was founded some 50 years ago by W. E. Upjohn, and has expanded from time to time until it covers about three city blocks and has a force of some 600 employees, about half of whom are technically trained, college graduates. A recent development in the process of making the so-called *friable pills* which disintegrate very rapidly, thereby increasing their effectiveness. This process is carefully guarded, there being only three men in the organization who know the complete details of manufacture. The committe is planning a visit to this plant during the convention to inspect the many and varied research and control laboratories which are maintained and the various processes of manufacturing and packaging their products, which are numerous.

Another plant which is nationally known for its products, is the Shakespeare Company, which manufactures all kinds of fishing tackle. They began the manufacture of fishing reels some 33 years ago and were one of the first to produce the now familiar level winding reel. Some ten years later, they began producing bamboo fishing rods and artificial baits, and at present they are one of the leaders in this field.

The main plant of the Checker Cab Company is located on the northern edge of Kalamazoo, where the complete taxicabs are assembled. They manufacture all of their own bodies and assemble the chassis in this plant. Their cars are shipped all over the United States, and they are busy at present on a large consignment of cabs, for New York City. The Limousine Body Company is also located in this city. The firm is a division of the Auburn Automobile Co., and makes all the bodies used in Auburn and Cord motor cars. The plant is operating on full production at the present time, and have bright prospects for the future months.

Kalamazoo is the home of the A. M. Todd Company, who manufacture and practically control the peppermint oil trade. The peppermint fields of the concern cover many hundreds of acres and are situated about twelve miles west of the city. They maintain several distilleries as these lands produce more than half of all the oil used in this country. While not included in the plant visits of the convention, the committee will arrange an inspection of this industry if anyone is particularly interested.

There are two wire manufacturers located in the city, both making wire cloth for paper mill use. Malcolm Mackey, who invented the process of rolling fourdrinier wires to increase their life and retention of stock, has his plant in the city, and the rolled wire known to the trade as *Karolltex* is made both here and at Appleton, Wis.

There are also two plants in the city which manufacture brushes for coating machines, and two firms making dandy rolls, screen plates and miscellaneous paper mill equipment.

It is obviously impossible to visit the many plants of interest in Kalamazoo during the three days of the meeting. The committee is therefore arranging a schedule which will include visitations to all of the mills and to two or three of the other plants which would be of common interest. The plans are practically completed at the present time and a definite outline will be published in about two weeks. There will also be given at the same time a complete description of each paper mill in Kalamazoo Valley, together with a list of products made and the various types of equipment used in each mill.

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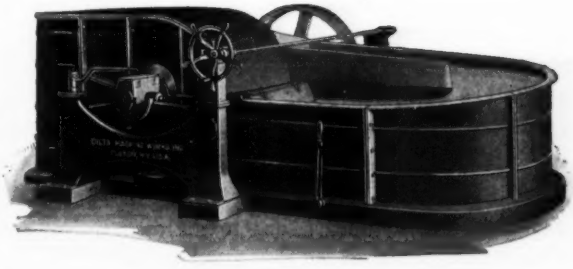

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TECHNICAL ASSOCIATION PAPERS

The fourteenth annual series of Technical Association Papers has recently been issued to the members of the Technical Association of the Pulp and Paper Industry.

Of outstanding interest is the large size of this volume. Five hundred and thirty pages are devoted to the papers presented at the fall and annual meetings together with the stenographic record of the discussion of these papers by members, a bibliography of the technical articles published in every magazine in the industry throughout the world and a classified record of the patents issued during the past year in the United States. We recall that the first series consisted of sixty-four pages. This growth in size is reflective of the increasing volume of paper and pulp making literature that is becoming available.

The growth of wealth in the United States has been found to be directly proportional to the number of text-book titles that have accumulated. Ever since the nation was founded our material wealth increase has followed this trend of factual wealth and has never led it. Factual wealth has undoubtedly been an important means for increasing material wealth.

Factual knowledge in the pulp and paper industry until the war period was limited to data published in the various trade journals, a few foreign books and Griffin and Little's text book. Following the war we have Witham's and Sutermeister's books and finally the five text books on the Manufacture of Pulp and Paper prepared by TAPPI. and the Canadian Association. These books are basic and represent established practice based on time honored application. Technical Association Papers, on the other hand, deals with today and tomorrow and provides us with a mirror by which we may look into the future and get a definite idea of what will be accepted manufacturing procedure a few years hence and to have a better understanding of the processes with which we are working today.

That there is a recognized need for an organization to do this pioneer work is made evident by the excellent support given to TAPPI by the industry. The Technical Association Papers in the past have been of immeasurable value to the industry. They cleared the way for vocational education of the highest type. They reviewed the waste situation in the industry and showed how it could be eliminated. They focused attention on all the worthwhile process and equipment developments and brought the engineer and chemist to the forefront in manufacturing supervision and management. Their record development of research and control methods has given the industry a means of establishing quality standards. These and its many other accomplishments have justified the work of TAPPI.

The availability of Technical Association Papers to non members of the association and to all interested is a symbol of the association's policy of contributing all of its findings to the general welfare of the industry. At first a group of less than one hundred men did this but the industry has rallied to their support and the relatively great amount of worthwhile information that is now available has been made possible by maintaining this generous policy.

There are, of course, still a few companies that have not realized that the dark ages of so called secret processes have passed by but for the most part they are the principal losers and are losing much in the way of good will and the desire on the part of other companies to give assistance when it is realized that it will not be reciprocated. Such companies will eventually have more enlightened management that will realize that their contributions to the general welfare of the industry will yield a return far in excess of that which they now enjoy. Fortunately the best managed companies appreciate the fact that by making contributions of information they encourage others to do the same. There are no more trade secrets and we may confidently look to TAPPI to guide the industry indefinitely with the aid of Technical Association Papers and other forms of factual wealth.

FINLAND'S PAPER PRODUCTION

Improvements and extension to mills brought about an increase of 15,000 tons over 1929 in the production of Finland's paper mills during 1930, according to a report from Consul John L. Bouchal at Helsingfors.

In 1930 the total production of the Finnish mills amounted to 320,000 tons as compared with 305,000 tons in the previous year.

Several of the larger mills were modernized during the year by purchasing newer types of machinery. Another important development was the purchase by the Kymmene Atkiebolag, the largest producer in the country, of two paper mills in England with a total capacity of 20,000 tons yearly. It is reported that the purchase of the two British mills was dictated by a desire to have better facilities for

disposing of the surplus pulp and cellulose produced by the company's mills in Finland.

Foreign markets for Finnish paper were poor throughout the year due chiefly to the world-wide depression. The demand was unstable and tended to decrease with the gradual fall in prices towards the end of the year. Competition, moreover, grew ever keener as the year progressed while many countries imposed higher import duties on paper products.

Finish imports of paper products during 1930 were valued at 23,623,000 Finnish Marks (about $595,000) and consisted entirely of certain kinds of paper products not manufactured in Finland, of which photographic paper is the most important item. Exports on the other hand were valued at approximately $46,375,000.

The last decade's progress in the Finnish export industries has been relatively greatest in the cellulose-manufacturing industry. A few figures will show this. Cellulose production increased from 171,931 metric tons in 1920 to 584,333 tons in 1928, to 612,228 tons in 1929 and to 696,447 tons in 1930. During the period 1920-1928 paper production increased from 142,517 tons to 308,091 tons and mechanical pulp production from 175,206 tons to 365,100 tons. The increase in the cellulose industry has been achieved through the construction particularly during the last four years, of large modern mills, according to the Finnish information.

Pulpwood Demand Declining in Europe

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 5, 1931.—European pulpwood continues to be under the influence of declining demand and consumption, with prices weakening slightly although the general market situation is approximately the same as a month ago, according to Commercial Attache M. H. Lund, at Oslo.

Of particular interest, says the report, are attempts to stabilize prices through export combinations as in Poland and the proposed cooperation between wood exporting countries, including Russia. A preliminary meeting was held in Warsaw and others are to follow during the year for the purpose of working out a definite plan of operation. While pulpwood has not been mentioned so far, if the plan is developed for lumber, pulpwood is likely to be included later, the report states.

American Writing Reduces Salaries

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., August 4, 1931.—Announcement was made Friday morning by Sidney L. Wilson, president of the American Writing Paper Company, Inc., of further curtailment and salary reductions as part of the retrenchment program now being worked out. Several men have been let go including William L. Plowman, assistant purchasing agent and connected with the office for over 30 years; and effective Saturday a cut of 10 per cent in the salaries of office employees and executives went into effect. There will be no change in the wage schedule of the paper mill employees and laborers. The reduction of employment also affects the office employees and executives.

Textbooks Still Selling

The Textbook Committee of the Paper Industry reports continued sales of the five volumes upon the "Manufacture of Pulp and Paper" notwithstanding hard times in general, and severe depression in some branches of the paper industry. Sales of the five volumes combined during the first half of 1931 ran from 64 copies of Volume I to 122 copies of Volume V, with a total of 463.

Those who have not been closely following the educational work in the paper industry in the United States and Canada will be surprised to learn of the extent to which the distribution of the textbooks upon the manufacture of pulp and paper, sponsored by the international industry, have gone during the past ten years. It was in February, 1921 that the first copy of Volume I came from the press, and in January, 1925 that the series was completed with the publication of Volume V. Work upon revision, necessitated by progress and improvement in the industry, was soon necessary, however, so that a revised Volume III was published in March, 1927, a new Volume IV in September, 1928, and a revised Volume V in March, 1929.

The total sales of all volumes will substantially pass 23,000 copies before the end of the current year.

The undertaking—which was generously financed by the pulp and paper manufacturers of North America at its inception—has now long been on a self-sustaining basis through royalties from sales, so that the Textbook Committee is able, whenever necessary, to carry the expense of further revisions and republications in order to maintain a thoroughly up-to-date standard.

Hawley Warehouse Burns

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., August 1, 1931.—The warehouse of the Hawley Pulp and Paper Company, Portland, was burned July 25 and a $250,000 stock of news print severely damaged by fire and water. The fire which started in the basement Saturday noon while the employees were at lunch, gained headway so rapidly that it proved one of the most baffling conflagrations to fight that the fire department of the city had experienced for some time.

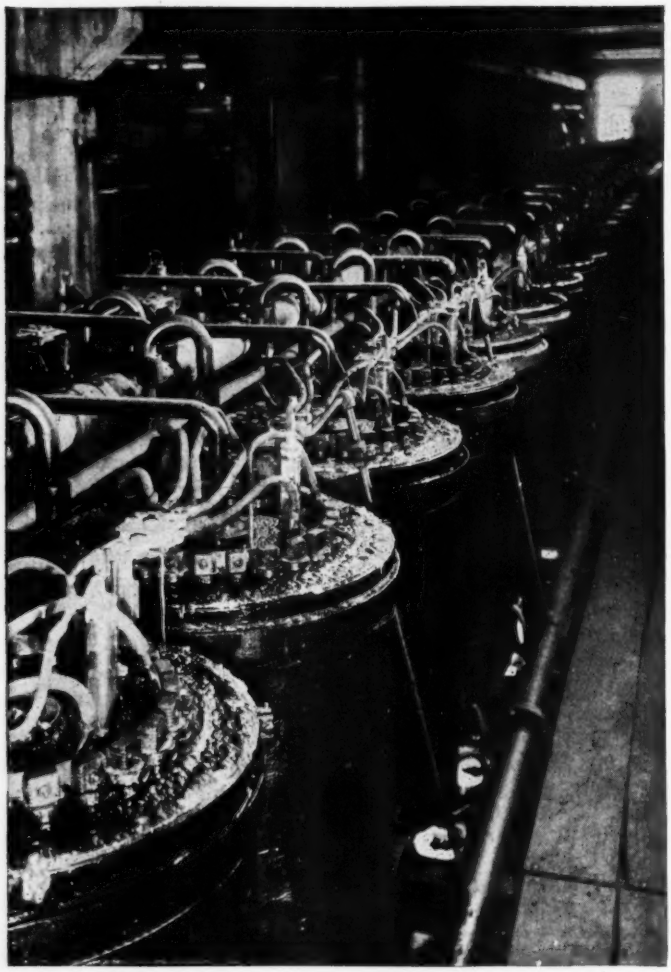
Huge rolls of paper stored in the basement were blazing so rapidly when the fire department arrived that flames reached the other two floors of the building in spite of the efforts of two huge fire boats on the river and 28 trucks and other pieces of fire apparatus which kept 30 streams of water playing on the fire for hours. The fire attracted thousands of spectators who were caught in the traffic jam on the way home from work. Although the building was of concrete the interior was severely burned.

As soon as it was seen that the paper stock was to be ruined, the Hawley Pulp and Paper mill at Oregon City which had closed down for the week-end, started operating again to furnish paper for the Sunday editions of the *Oregonian* and *Journal*, Portland newspapers. A supply was soon available although the colored paper for the sports section of the *Oregonian* was missing.

The origin of the fire is at this time undetermined and the actual damage likewise as insurance men had not yet been able to make a check, but the loss is covered by insurance according to T. Henry Boyd, Blythe & Co., Portland, speaking for the Hawley interests. The extent of the damage to the building is to be determined also.

It is announced that the Hawley Pulp and Paper company's mill at Oregon City will operate on an increased schedule for a time until a reserve is again provided. W. A. Graves is sales manager for the company.

THE PULSE OF A GREAT INDUSTRY



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Edited by Ronald G. Macdonald, Secretary

United States Patents On Papermaking

Second Quarter, 1931

Compiled by Clarence J. West, Chairman, Committee on Abstracts and Bibliography

APRIL 7, 1931

1,799,216. Method of sizing paper making fibers. Judson A. De Cew, assignor to Process Engineers, Inc., New York, N. Y. Filed Nov. 15, 1928. 9 claims. (Cl. 92-21).

1,799,217. Process of incorporating emulsified rubber into paper pulp to produce paper products. Judson A. De Cew, assignor to Process Engineers, Inc., New York, N. Y. Filed Jan. 23, 1929. 14 claims. (Cl. 92-21).

1,799,350. Method of and apparatus for making paper. Charles J. Barnes, Redlands, Cal. Filed Apr. 1, 1929. 7 claims. (Cl. 92-39).

1,799,357. Method and apparatus for making paper vessels. Harry G. Davis, assignor to Lily-Tulip Cup Corporation, New York, N. Y. Filed Aug. 7, 1925. 46 claims. (Cl. 93-60).

1,799,419. Beating-engine recorder. Edward A. Haynes, assignor to Port Huron Sulphite and Paper Company, Port Huron, Mich. Filed Apr. 12, 1928. 3 claims. (Cl. 92-24).

1,799,499. Safety paper. Raymond E. Bohrer, assignor to The Todd Company Incorporated, Rochester, N. Y. Filed Feb. 29, 1928. 13 claims. (Cl. 283-8).

1,799,506. Method of making composite material. Louis T. Frederick, assignor to Fibroc Insulation Company, Valparaiso, Ind. Filed Dec. 23, 1926. 6 claims. (Cl. 154-2).

1,799,601. Process of bleaching paper pulp and the like. John Neumann, Chicago, Ill. Filed Mar. 9, 1925. Renewed Aug. 6, 1930. 4 claims. (Cl. 8-2).

1,799,775. Suction roll. Earl E. Berry, assignor to Beloit Iron Works, Beloit, Wis. Filed Oct. 26, 1928. 5 claims. (Cl. 92-53).

1,799,793. Stencil sheet. Shinjiro Horii, Tokyo, Japan. Filed Apr. 30, 1929. 2 claims. (Cl. 41-38.6).

1,799,797. Adhesive. Ferdinand W. Huempfner, assignor to Mid-States Gummed Paper Co., Chicago, Ill. Filed Mar. 5, 1928. 4 claims. (Cl. 91-68). Gummed paper.

1,799,865. Method for producing window envelopes. William H. Rife, Chicago, Ill. Filed Apr. 29, 1930. 8 claims. (Cl. 93-61).

1,799,931. Water-laid felt and article made therefrom. Henry Philip Shopneck, assignor to Arden Box Toe Company, Watertown, Mass. Filed Jan. 13, 1927. 4 claims. (Cl. 92-21).

1,800,121. Process of manufacture of wall board, pressboard and the like. Fernando Somoza Vivas, Bronxville, N. Y. Filed Dec. 3, 1929. 6 claims. (Cl. 92-21).

1,800,149. Pneumatic suction box for suction rolls. Guyon Miller and Albert H. Standley, assignors to Downingtown Manufacturing Company, Downingtown, Pa. Filed Nov. 16, 1928. 19 claims. (Cl. 92-53).

APRIL 14, 1931

R18,042. Truck for handling paper rolls and other articles. Clyde E. Cochran, assignor to The Elwell Parker Electric Company, Cleveland, Ohio. Original No. 1,538,168, dated May 19, 1925. 21 claims. (Cl. 214-65).

1,800,214. Means for treating paper. Paul A. Gollnick, assignor to Selectography Company, Chicago, Ill. Filed June 15, 1928. 3 claims. (Cl. 91-32). Coating device.

1,800,215. Method and means for storing paper pulp coming from the wet machine. John Edward Hanny, assignor to Crown Willamette Paper Company, San Francisco, Calif. Filed Aug. 5, 1929. 3 claims. (Cl. 92-20).

1,800,389. Method of and apparatus for controlling the working of material. Helgo Wiggo Jespersen, assignor to Western Electric Company, Incorporated, New York, N. Y. Filed Aug. 30, 1928. 8 claims. (Cl. 92-27). A flow control mechanism.

1,800,538. Fiber conduit. William G. Johnson, assignor to Line Material Company, South Milwaukee, Wis. Filed Nov. 15, 1929. 5 claims. (Cl. 247-38).

1,800,551. Paper. George James Manson, assignor to Manson Chemical Company, Montclair, N. J. Filed July 8, 1926. 10 claims. (Cl. 92-21).

1,800,561. Transfer material. Samuel A. Neidich, assignor to Neidich Process Company, Burlington, N. J. Filed May 5, 1927. 2 claims. (Cl. 134-35). A frangible transfer material, adapted for use in the manufacture of carbon paper.

1,800,870. Digestion of raw materials. Samuel Milne, Edinburgh, Scotland. Filed Mar. 16, 1928. 8 claims. (Cl. 92-7). Use of an externally generated, relatively high-frequency, transient electromotive force.

1,800,872. Fourdrinier wire fabric. Guy M. Peterson, assignor to Cheney Bigelow Wire Works, Springfield, Mass. Filed Sept. 4, 1930. 6 claims. (Cl. 139-425).

1,801,004. Pulp-feeding device. Harry E. Holcomb, assignor to Fiberfraks Inc., New York, N. Y. Filed May 29, 1928. 11 claims. (Cl. 92-46).

1,801,081. Drier felt for use in paper-making machines. Thomas Hindle, Haslingden, England. Filed Aug. 24, 1929. 2 claims. (Cl. 139-408).

1,801,238. Device for increasing the capacity of wet machines and for increasing the thickness of sheets emanating therefrom. Sigurd Norman, Newberg, Oreg. Filed Sept. 25, 1929. 10 claims. (Cl. 92-43).

1,801,245. Prepared roofing material. Eli L. Chamberlain, assignor to Bird and Son, Inc., East Walpole, Mass. Filed June 18, 1928. 5 claims. (Cl. 154-51).

APRIL 21, 1931

1,801,313. Ornamental paper. Esther Jern Kiefer, Milwaukee, Wis. Filed Feb. 11, 1918. 1 claim. (Cl. 91-68).

1,801,525. Insulating unit. William E. Nelson, Minneapolis, Minn. Filed Sept. 24, 1927. 3 claims. (Cl. 154-44).

1,801,548. Barge for pulp wood and the like. George P. Fisher and Walter M. Balfour, Corner Brook, Newfoundland. Filed May 31, 1928. Renewed Feb. 27, 1931. 8 claims. (Cl. 114-73).

1,801,704. Material for foodstuff containers and process of preparing the same. Sidney Deeds Wells, assignor to Paper Mill Laboratories, Inc., Quincy, Ill. Filed Apr. 8, 1929. 8 claims. (Cl. 92-9). Strawboard.

1,801,739. Machine for making paper boxes. Henry A. Gustafson assignor to Pneumatic Scale Corporation, Limited, Quincy, Mass. Filed Oct. 9, 1925. 4 claims. (Cl. 271-2.3).

1,801,782. Process for the manufacture of high alpha-cellulose fiber. George A. Richter and Milton O. Schur, assignors to the Brown Company, Berlin, N. H. Filed Dec. 1, 1925. 31 claims. (Cl. 92-9).

1,801,822. Sheet-transfer mechanism. Daniel Manson Sutherland, Jr., Morrisville, Pa. Filed Sept. 24, 1928. 12 claims. (Cl. 92-39).

1,801,876. Process for bleaching cellulose fiber. Erich Opfermann, assignor to I. G. Farbenindustrie Aktiengesellschaft, Frankfort-on-the-Main, Germany. Filed Apr. 14, 1925. 2 claims. (Cl. 8-2).

1,802,009. Floor covering. Dozier Finley, assignor to The Paraffine Companies, Inc., San Francisco, Calif. Filed Jan. 24, 1927. 31 claims. (Cl. 92-40).

1,802,266. Pulp digester with interior circulation. Einar Morterud, Torderod, near Moss, Norway. Filed Oct. 10, 1929. 1 claim. (Cl. 92-7).

APRIL 28, 1931

1,802,407. Method and apparatus for the freeing from water of webs of paper, cellulose, and the like. Alois Danninger, Herbert Schmolka and Richard Kastner, Steyrermuhl, Austria. Filed Sept. 4, 1928. 4 claims. (Cl. 92-38).

1,802,522. Corrugated cardboard. Jacob Moll, Lucka, Sachsen-Anhalt, Germany. Filed Dec. 20, 1927. 8 claims. (Cl. 154-55).

1,802,543. Insulating materials and method of making the same. Charles A. Upson, assignor to The Upson Company, Lockport, N. Y. Filed Feb. 23, 1928. 6 claims. (Cl. 154-2).

1,802,561. Process of making paper. Lester Kirschbraun, assignor to The Flint Kote Company, Boston, Mass. Filed Oct. 5, 1929. 7 claims. (Cl. 92-21).

1,802,575. High alpha cellulose fiber and process of producing same. George A. Richter, assignor to Brown Company, Berlin, N. H. Filed Aug. 24, 1925. 15 claims. (Cl. 92-13).

1,802,644. Method of charging cellulose digesters and means therefor. Per Albert Fresk, Robertsfors, Sweden. Filed Sept. 25, 1928. 4 claims. (Cl. 92-7).

1,802,715. Process of pulping plant tissues by means of a volatile base. Ralph Malcolm Hixon, Charles James Peterson and Chester Hamlin Werkman, assignors to Iowa State College of Agricultural and Mechanical Arts, Ames, Iowa. Filed June 30, 1930. 4 claims. (Cl. 92-13).

1,802,857. Method and machine for making paper tubes. William R. Willauer, Spartanburg, S. C. Filed Oct. 12, 1928. 5 claims. (Cl. 93-80).

1,802,878. Machine for making multiply building board. Harry A. Cumfer, Chicago, Ill., assignor of one-half to Willard J. Mason, Greenwich, Conn. Filed June 24, 1929. 8 claims. (Cl. 154-1).

1,802,879. Process of making multiply building board. Harry A. Cumfer, Chicago, Ill., assignor of one-half to Willard J. Mason, Greenwich, Conn. Filed June 24, 1929. 12 claims. (Cl. 154-2).

1,802,880. Method of manufacture of laminated fibrous structures. Harry A. Cumfer, Chicago, Ill., assignor of one-half to Willard J. Mason, Greenwich, Conn. Filed Mar. 31, 1930. 3 claims. (Cl. 154-33).

1,802,984. Process of treating ground-wood pulp. George A. Richter, assignor to Brown Company, Berlin, N. H. Filed Mar. 11, 1927. 12 claims. (Cl. 92-13).

1,803,044. Paper-making machine. Charles W. Valentine, assignor to the Bagley and Sewall Company, Watertown, N. Y. Filed Nov. 22, 1929. 7 claims. (Cl. 92-44). Slice.

1,803,045. Driving mechanism for paper-making machines. Charles W. Valentine and Peter N. Ottersland, assignors to The Bagley and Sewall Company, Watertown, N. Y. Filed July 19, 1930. 1 claim. (Cl. 74-34).

1,803,129. Fibrous sheet. John F. Palmer, Akron, Ohio. Filed Sept. 4, 1928. 1 claim. (Cl. 154-2.5).

MAY 5, 1931

R18,060. Winding machine. James A. Cameron and George B. Rickard, assignors to Cameron Machine Company, Brooklyn, N. Y. Original No. 1,759,538, dated May 20, 1930. 6 claims. (Cl. 242-66).

1,803,409. Manufacture of impregnated fiber articles. Milton O. Schur, assignor to Brown Company, Berlin, N. H. Filed July 30, 1929. 17 claims. (Cl. 92-21).

1,803,410. Manufacture of pulp articles. Milton O. Schur, assignor to Brown Company, Berlin, N. H. Filed Feb. 20, 1930. 8 claims. (Cl. 92-21).

1,803,443. Process of preparing fiber from wood and wood waste. Paul G. von Hildebrandt, assignor to Howard B. Salkeld, Pittsburgh, Pa. Filed Nov. 20, 1928. 11 claims. (Cl. 92-13).

1,803,444. Digester. Paul G. von Hildebrandt, assignor to Howard B. Salkeld, Pittsburgh, Pa. Filed Nov. 20, 1928. 5 claims. (Cl. 92-7).

1,803,487. Sharpening mechanism for grinding machines. Robert E. Read, assignor to International Paper Company, New York, N. Y. Filed May 14, 1927. 7 claims. (Cl. 125-11).

1,803,642. Paper product and method of making the same. Harold Robert Rafton, Lawrence, Mass., assignor to Raffold Process Corporation. Filed Sept. 5, 1928. 20 claims. (Cl. 92-21). A sized paper filled with carbonate filler.

1,803,643. Paper product and method of making the same. Harold Robert Lafton, Lawrence, Mass., assignor to Raffold Process Corporation. Filed Sept. 5, 1928. 24 claims. (Cl. 92-21).

1,803,644. Method of sizing paper. Harold Robert Lafton, Lawrence, Mass., assignor to Rafton Laboratories, Inc. Filed Sept. 5, 1928. 26 claims. (Cl. 92-21).

1,803,645. Paper product and method of making the same. Harold Robert Rafton, Lawrence, Mass., assignor to Raffold Process Corporation. Filed Sept. 5, 1928. 21 claims. (Cl. 92-21).

1,803,646. Method of eliminating form in paper manufacture. Harold Robert Rafton, Lawrence, Mass., assignor to Raffold Process Corporation. Filed Sept. 5, 1928. 35 claims. (Cl. 92-21).

1,803,647. Manufacture of carbonate filled sized paper. Harold Robert Rafton, Lawrence, Mass., assignor to Raffold Process Corporation. Filed Sept. 5, 1928. 20 claims. (Cl. 92-21).

1,803,648. Manufacture of sizing carbonate filled paper. Harold Robert Rafton, Lawrence, Mass., assignor to Raffold Process Corporation. Filed Sept. 5, 1928. 28 claims. (Cl. 92-21).

1,803,649. Method of eliminating foam in paper manufacture. Harold Robert Rafton, Lawrence, Mass., assignor to Raffold Process Corporation. Filed Sept. 5, 1928. 14 claims. (Cl. 92-21).

1,803,650. Method of sizing carbonate filled paper. Harold Robert Rafton, Lawrence, Mass., assignor to Raffold Process Corporation. Filed Sept. 5, 1928. 23 claims. (Cl. 92-21).

1,803,651. Method of sizing carbonate filled paper. Harold Robert Rafton, Lawrence, Mass., assignor to Raffold Process Corporation. Filed Sept. 5, 1928. 19 claims. (Cl. 92-21).

1,803,652. Method of sizing carbonate filled paper. Harold Robert Rafton, Lawrence, Mass., assignor to Raffold Process Corporation. Filed Sept. 5, 1928. 19 claims. (Cl. 92-21).

1,803,698. Blank preparing mechanism for box making machines. Harold J. Goss, assignor to The International Paper Box Machine Company, Nashua, N. H. Filed Aug. 19, 1929. 13 claims. (Cl. 93-49).

1,803,699. Machine for applying strips to blanks. Harold J. Goss, assignor to The International Paper Box Machine Company, Nashua, N. H. Filed Nov. 15, 1929. 14 claims. (Cl. 93-56).

1,803,738. Method of making sulphite pulp. Alfred M. Thomsen, San Francisco, Calif. Filed Aug. 24, 1929. 3 claims. (Cl. 92-11).

1,803,737. Process relating to the production of synthetic lumber from corn stalks. Orland R. Sweeney, assignor to Iowa State College of Agricultural and Mechanical Arts, Ames, Iowa. Filed June 27, 1929. 10 claims. (Cl. 92-6).

1,803,816. Waterproof paper. Clarence J. Strobel, Marysville, Mich., and Allen P. Tallman, Toledo, Ohio. Filed Mar. 21, 1928. 1 claim. (Cl. 92-21). Uses para-cumarone and menhaden oil.

1,803,909. Doctor. Frederick W. Lodding and John Warren Vedder, assignors to Rice, Barton and Fales, Incorporated, Worcester, Mass. Filed Apr. 2, 1928. 3 claims. (Cl. 92-74).

1,803,924. Laminated doctor. John Warren Vedder, assignor to Rice, Barton and Fales, Incorporated, Worcester, Mass. Filed Apr. 2, 1928. 4 claims. (Cl. 92-74).

1,803,925. Flexible doctor. John Warren Vedder and Frederick W. Lodding, assignors to Rice, Barton and Fales, Incorporated, Worcester, Mass. Filed Jan. 28, 1929. 16 claims. (Cl. 92-74).

1,803,926. Press roll. John Warren Vedder, Worcester, Mass. Filed Oct. 4, 1929. 1 claim. (Cl. 92-49).

1,803,927. Flexible doctor or scraper blade. John Warren Vedder, assignor to Rice, Barton and Fales, Incorporated, Worcester, Mass. Filed Sept. 26, 1930. 5 claims. (Cl. 92-74).

1,803,936. Treatment of fibrous material. Hans Friedlaender, Berlin, Germany. Filed Apr. 9, 1928. 16 claims. (Cl. 92-21).

1,804,043. Laminated insulating structure. John E. Whittlesey, Newton, Mass. Filed Dec. 28, 1929. 1 claim. (Cl. 154-44).

1,804,116. Digesting system. August F. Richter, assignor to Stebbins Engineering and Manufacturing Company, Watertown, N. Y. Filed Dec. 12, 1929. 21 claims. (Cl. 92-7).

1,804,203. Pulp molding machine. Merle P. Chaplin, assignor to Fidelity Trust Company, trustee, Portland, Me. Filed Mar. 29, 1928. 35 claims. Cl. 92-56).

1,804,245. Composition of matter. Daniel C. Bruce, Nashville, Tenn. Filed Apr. 26, 1927. 2 claims. (Cl. 106-39). Filling composition for fiber board surfaces.

MAY 12, 1931

1,804,417. Composition for and method of heat and fire proofing paper, craft board and the like. Otto Herting, assignor to Sani Paper Products Co., Inc., Philadelphia, Pa. Filed June 15, 1926. 27 claims. (Cl. 91-70).

1,804,483. Apparatus for use in finishing paper. Stuart W. Webb, John G. Callan and Albert Allen, assignors to Eastern Manufacturing Company, Boston, Mass. Filed July 2, 1927. 9 claims. (Cl. 92-76).

1,804,495. Apparatus and method of ornamenting papers. Frank G. Crane and Joseph M. Ward, Detroit, Mich. Filed July 3, 1929. 9 claims. (Cl. 92-40).

1,804,555. Paper pulp container. Marino Gentile, assignor of one-half to Samuel W. Weis, Chicago, Ill. Filed Oct. 20, 1928. 2 claims. (Cl. 91-68).

1,804,560. Manufacture of paper board. Erwin H. Hussey, Springfield, Ohio. Filed Mar. 31, 1930. 8 claims. (Cl. 92-42).

1,804,633. Process of making fireproofed wood and like cellular products. Ralph H. McKee, Jersey City, N. J. Filed Jan. 9, 1928. 2 claims. (Cl. 91-68).

1,804,661. Corrugating machine. Joshua Wagner, assignor to Diagonal Corrugated Patent Corporation, New York, N. Y. Filed June 18, 1929. 7 claims. (Cl. 154-30).

1,804,893. Process for decomposing lignified fibers. Walter Seidel and Rudolf Fingado, assignors to I. G. Farbenindustrie Aktiengesellschaft, Frankfort-on-the-Main, Germany. Filed Jan. 21, 1930. 3 claims. (Cl. 92-11).

1,804,916. Machine for producing tape loops. Narie Cotte, Leipzig, Germany. Filed Feb. 21, 1930. 3 claims. (Cl. 154-1).

1,804,967. Process of producing cellulose from lignified material. Robert B. Wolf, Raymond P. Hill and Raymond S. Hatch, assignors to Lignocellulose Corporation, New York, N. Y. Filed June 13, 1930. 10 claims. (Cl. 92-11).

1,804,978. Safety paper. John Genoese, San Francisco, Calif. Filed Mar. 1, 1926. 2 claims. (Cl. 134-33).

1,805,013. Method of making fast colored crepe paper. Galen H. Sayler, assignor to Dennison Manufacturing Company, Framingham, Mass. Filed May 16, 1929. 3 claims. (Cl. 8-5).

1,805,067. Multiply bag and method of producing the same. Bartlett Arkell, New York, N. Y. Filed Apr. 26, 1928. 9 claims. (Cl. 229-55).

1,805,070. Method of and apparatus for applying coating. Adelmer M. Bates, assignor to St. Regis Paper Company, New York, N. Y. Filed Mar. 25, 1926. 5 claims. (Cl. 91-12).

1,805,128. Paper cutting and trimming machine and gauge and gauge-stop, carrier, hold-down, and safety mechanism therefor. Edward M. Brackett and Dietrich Daneke, assignors to The Brackett Stripping Machine Company, Topeka, Kans. Filed Apr. 30, 1928. 10 claims. (Cl. 164-51).

1,805,245. Method of making articles of rubber and fibrous material and product. Ernest Hopkinson and Willis A. Gibbons, assignors to New York Belting and Packing Company, New York, N. Y. Filed June 8, 1925. 12 claims. (Cl. 91-68).

1,805,316. Process for the treatment of fibers. Herman G. Reichard, Brooklyn, N. Y. Filed Aug. 10, 1929. 10 claims. (Cl. 8-2).

MAY 19, 1931.

1,805,474. Apparatus for controlling moisture content of paper or the like. Albert Allen and John G. Callan, assignors to Atlantic Precision Instrument Company, Boston, Mass. Filed Oct. 24, 1927. 6 claims. (Cl. 34-48).

1,805,499. Mask for cylinder molds. Milton O. Schur, assignor to Brown Company, Berlin, N. H. Filed Feb. 14, 1930. 6 claims. (Cl. 92-42).

1,805,510. Machine for folding and scalloping paper sheets. Samuel J. Campbell, assignor to Hudson-Sharp Machine Company, Green Bay, Wis. Filed Aug. 16, 1929. 6 claims. (Cl. 270-67).

1,805,671. Gearless suction roll. William H. Millspaugh, assignor to The Paper and Textile Machinery Company, Sandusky, Ohio. Filed Mar. 17, 1928. 9 claims. (Cl. 92-53).

1,805,730. Means for impregnating and coating flexible materials. Emil Weinheim, New York, N. Y. Filed June 23, 1926. 3 claims. (Cl. 91-17).

1,805,739. Built-up roofing and method of application. William J. Moeller and Arthur H. Zimmermann, assignors to The Philip Carey Manufacturing Company, a Corporation of Ohio. Filed Mar. 29, 1926. 1 claim. (Cl. 108-9).

1,805,780. Countersunk Suction roll shell. William H. Millspaugh, assignor to The Paper and Textile Machinery Company, Sandusky, Ohio. Filed Dec. 13, 1926. 2 claims. (Cl. 92-53).

1,805,799. Process for making sulphite pulp from Douglas fir and other resinous conifers. Henry K. Benson, Seattle, Wash. Filed July 27, 1929. 3 claims. (Cl. 92-2).

1,805,840. Reenforced and protected wall board edge. Gustave Adolph New, assignor to The American Gypsum Co., Port Clinton, Ohio. Filed Jan. 20, 1930. 4 claims. (Cl. 154-45.9).

1,805,883. Method of producing building board. Carl-Johan H. Nordenswan, assignor to Hercules Powder Company, Wilmington, Del. Filed Feb. 24, 1928. 1 claim. (Cl. 92-2).

1,806,006. Board making machine. Charles A. Upson and Otto R. Winter, assignors to The Upson Company, Lockport, N. Y. Filed Mar. 10, 1927. 34 claims. (Cl. 92-39).

1,806,024. Mineral fiber felting. Frank C. Russell and Clinton L. Savidge, assignor to The Mineral Felt Insulating Company, Toledo, Ohio. Filed Dec. 5, 1929. 18 claims. (Cl. 92-61).

1,806,119. Method of and apparatus for producing tubular articles. George L. Rock, assignor to Western Electric Company. Incorporated, New York, N. Y. Filed Oct. 10, 1929. 10 claims. (Cl. 92-55).

1,806,205. Machine for making paper covered ironing boards. John E. Kalgren, assignor to The J. R. Clark Co., Minneapolis, Minn. Filed Aug. 10, 1928. 13 claims. (Cl. 154-41).

1,806,238. Means for controlling the operation of pulp grinding. Clayton D. de Mers, assignor to Taylor Instrument Companies, Rochester, N. Y. Filed May 31, 1930. 4 claims. (Cl. 83-75).

1,806,272. Machine for refining paper and pulp. Ludwig H. Wessel and Homer N. Booker, assignors to The Hermann Manufacturing Company, Lancaster, Ohio. Filed July 10, 1928. 4 claims. (Cl. 92-27).

1,806,273. Paper manufacture. Harrison R. Williams, New York, N. Y. Filed Apr. 3, 1929. 2 claims. (Cl. 283-62).

1,806,309. Treatment of pulp and product of same. George A. Richter and Milton O. Schur, assignors to Brown Company, Berlin, N. H. Filed Aug. 5, 1927. 14 claims. (Cl. 92-8). Method of deresinifying pulp.

1,806,412. Paper tape machine. Joseph Olsen, Portland, Ore. Filed Dec. 23, 1926. Renewed Oct. 14, 1930. 4 claims. (Cl. 164-36).

1,806,421. Cellulose derivative manufacture. Milton O. Schur and Robert A. Webber, assignors to Brown Company, Berlin, N. H. Filed July 20, 1927. 7 claims. (Cl. 260-10). Method of separating the finely divided and colloidal cellulose from longer fibers.

1,806,474. Process for sizing paper. Ernest Lecocq, Brussels, Belgium. Filed May 13, 1929. 9 claims. (Cl. 92-21).

MAY 26, 1931

1,806,703. Manufacture of cellulose. Karl Ott and Heribert Schuessler, assignors to I. G. Farbenindustrie Aktiengesellschaft, Frankfort-on-the-Main, Germany. Filed Mar. 5, 1930. 9 claims. (Cl. 92-9).

1,806,774. Machine for rewinding webs of papers applicable for similar purposes. Clarence Hammond Webster, assignor to R. W. Crabtree and Sons, Limited, Leeds, England. Filed Aug. 5, 1927. 12 claims. (Cl. 242-58).

1,806,943. Manufacture of paper containers. Lydia B. Koch and Joseph Buchina, assignors to The Reinforced Paper Bottle Corporation, New York, N. Y. Filed Nov. 16, 1929. 1 claim. (Cl. 93-55).

1,807,034. Universal rod mill. Harlowe Hardinge, assignor to Hardinge Company, Incorporated, York, Pa. Filed Feb. 25, 1927. 12 claims. (Cl. 83-9).

1,807,111. Process for producing fibrous material. Sidney D. Wells, assignor to The Mine and Smelter Supply Company, Denver, Colo. Filed Sept. 27, 1927. 14 claims. (Cl. 92-20).

1,807,205. Mulch for promoting growth of plants. William M. Floring, assignor to The Ruberoid Co., Bound Brook, N. J. Filed Apr. 21, 1928. 2 claims. (Cl. 47-9).

1,807,221. Fiber-preparing treatment of bast or vegetable fiber plants. Frederick McCaw, Belfast, Northern Ireland. Filed July 25, 1929. 11 claims. (Cl. 19-29).

1,807,320. Digesting and cooking liquor preparation system. Albert Davies Merrill, Watertown, N. Y. Filed June 24, 1930. 22 claims. (Cl. 92-11).

1,807,360. Paper roll handling mechanism. William G. Wehr, assignor to The Cleveland Crane and Engineering Company, Wickliffe, Ohio. Filed Mar. 17, 1928. 11 claims. (Cl. 294-106).

1,807,461. Extractor in presses. Henry J. Wiser, assignor to International Fibreboard, Limited, Gatineau, Quebec, Canada. Filed June 2, 1930. 7 claims. (Cl. 92-41).

1,807,544. Directly heated pulp digester. Einar Morterud, Torderod, near Moss, Norway. Filed Feb. 26, 1929. 1 claim. (Cl. 92-7).

JUNE 2, 1931

1,807,621. Shoe stiffener and process of manufacture. Albert L. Clapp, assignor to Beckwith Manufacturing Company, Boston, Mass. Filed Sept. 12, 1923. 6 claims. (Cl. 92-21).

1,807,862. Envelope machine. Abraham Novick, assignor to F. L. Smithe Machine Co., Inc., New York, N. Y. Filed Dec. 21, 1926. Renewed Aug. 1, 1930. 19 claims. (Cl. 93-62).

1,807,863. Envelope machine Abraham Novick, assignor to F. L. Smithe Machine Co., Inc., New

York, N. Y. Filed Feb. 10, 1927. Renewed Nov. 8, 1930. 14 claims. (Cl. 93-62).

1,807,864. Envelope making machinery. Abraham Novick, assignor to F. L. Smithe Machine Co., Inc., New York, N. Y. Filed Nov. 10, 1927. Renewed Sept. 24, 1930. 9 claims. (Cl. 271-62).

1,807,865. Mechanism for feeding sheets or blanks. Abraham Novick, assignor to F. L. Smithe Machine Co., Inc., New York, N. Y. Filed Jan. 6, 1928. Renewed Sept. 4, 1930. 10 claims. (Cl. 271-30).

1,807,866. Envelope machinery. Abraham Novick, assignor to F. L. Smithe Machine Co., Inc., New York, N. Y. Filed Feb. 25, 1928. Renewed Oct. 18, 1930. 10 claims. (Cl. 93-68).

1,807,867. Machine for making envelopes. Abraham Novick, assignor to F. L. Smithe Machine Co., Inc., New York, N. Y. Filed June 12, 1928. Renewed Jan. 17, 1931. 4 claims. (Cl. 93-62).

1,807,918. Roofing shingle and method of making same. Lester Kirschbraun and Otto A. Heppes, assignors to The Patent and Licensing Corporation, Boston, Mass. Filed Nov. 20, 1928. 7 claims. (Cl. 91-68).

1,808,014. Machine for making paper boxes or the like. Samuel Bergstein, assignor to The Interstate Folding Box Company, Middletown, Ohio. Filed Dec. 4, 1929. 15 claims. (Cl. 93-44).

1,808,021. Apparatus and method of marbling paper. Frank G. Crane and Joseph M. Ward, Detroit, Mich. Filed July 3, 1929. 22 claims. (Cl. 92-40).

1,808,055. Paper making machine. William H. Millspaugh, assignor to The Paper and Textile Machinery Co., Sandusky, Ohio. Filed July 20, 1926. 10 claims. (Cl. 92-39).

1,808,067. Paper and method of making the same. Harold Robert Rafton, assignor to Raffold Process Corporation, Lawrence, Mass. Filed Nov. 15, 1928. 41 claims. (Cl. 92-21). Alkaline filler.

1,808,068. Manufacture of paper. Harold Robert Rafton, assignor to Raffold Process Corporation, Lawrence, Mass. Filed Nov. 15, 1928. Renewed Jan. 21, 1931. 30 claims. (Cl. 92-21).

1,808,069. Manufacture of paper. Harold R. Rafton, assignor to Raffold Process Corporation, Lawrence, Mass. Filed Nov. 15, 1928. Renewed Jan. 21, 1931. 25 claims. (Cl. 92-21).

1,808,070. Method of producing paper filled with alkaline filler. Harold R. Rafton, assignor to Raffold Process Corporation, Lawrence, Mass. Filed Nov. 24, 1928. 31 claims. (Cl. 92-21).

1,808,071. Method of producing paper filled with alkaline filler. Harold R. Rafton, assignor to Raffold Process Corporation, Lawrence, Mass. Filed Nov. 24, 1928. Renewed Aug. 15, 1930. 33 claims. (Cl. 92-21).

1,808,072. Method of improving paper machine operation. Harold Robert Rafton, assignor to Raffold Process Corporation, Lawrence, Mass. Filed Dec. 11, 1928. Renewed Mar. 5, 1931. 24 claims. (Cl. 92-40). Alkaline filler with casein.

1,808,073. Method of improving paper machine operation. Harold Robert Rafton, assignor to Raffold Process Corporation, Lawrence, Mass. Filed Dec. 11, 1928. Renewed Mar. 5, 1931. 26 claims. (Cl. 92-40).

1,808,092. Top relief valve for sulphite digesters. Leopold Wimmes, Muskegon, Mich. Filed July 21, 1930. 3 claims. (Cl. 92-7).

1,808,142. Feeder for envelope machines. Harold S. Labombarde, assignor to The International Paper Box Machine Company, Nashua, N. H. Filed July 30, 1928. 6 claims. (Cl. 271-49).

1,808,356. Hydraulic leather, fabric or paper rolling machine. Johannes Kleinewefers, assignor to the Firm: Joh. Kleinewefers Söhne, Krefeld, Germany. Filed June 10, 1929. 1 claim. (Cl. 149-23).

1,808,407. Wrapping paper for the insulation of electric cables. Carl August Haanen and Hans Meurer, assignors to Felten und Guilleaume Carlswerk Action Gesellschaft, Cologne-Mulheim, Germany. Filed July 7, 1925. 1 claim. (Cl. 92-68). Paper is subjected to pressure to increase density.

1,808,410. Dry cell and lining therefor. George W. Heise and Edwin A. Schumacher, assignors to National Carbon Company, Inc., New York, N. Y. Filed June 11, 1924. 6 claims. (Cl. 136-131). Lining consists of one or more layers of kraft paper.

1,808,493. Suction roll shell drilling. Harry C. Burden, assignor to The Paper and Textile Machinery Company, Sandusky, Ohio. Filed Nov. 23, 1928. 14 claims. (Cl. 92-53).

1,808,536. Imprint device. Ira T. Fisk, assignor to Stevens and Thompson Paper Company, North Hoosick, N. Y. Filed Jan. 19, 1929. 18 claims. (Cl. 92-48). Marking roll.

1,808,571. Reenforced wall board. Harry C. Raynes, assignor to Bemis Industries, Incorporated, Boston, Mass. Filed Nov. 1, 1926. 4 claims. (Cl. 154-45.9).

1,808,590. Method of manufacturing paper, pasteboard, felt and the like. August Wilhelm Andernach, Beuel, Germany. Filed Dec. 5, 1929. 6 claims. (Cl. 154-2).

1,808,593. Manufacture of flax fiber. Edgar Raymond Clark, assignor to Milton S. Erlanger, New York, N. Y. Filed Aug. 17, 1927. 15 claims. (Cl. 92-5).

JUNE 9, 1931

1,808,773. Recovery of alkali metal compounds. Charles A. Grondona, assignor to Peebles Processes, Inc., San Francisco, Calif. Filed Sept. 28, 1927. 5 claims. (Cl. 23-48).

1,808,830. Method and apparatus for digesting wood. Joseph E. Bond, Appleton, Wis. Filed May 27, 1929. 9 claims. (Cl. 92-7).

1,809,006. Method of bottoming paper containers. Wilbur L. Wright and Joseph T. Bond, assignors to Oswego Falls Corporation, Fulton, N. Y. Filed Feb. 15, 1927. Renewed July 9, 1928. 6 claims. (Cl. 93-55).

1,809,146. Process of decorating paper. Harry M. Ross, assignor of one-half to Beveridge Paper Company, Indianapolis, Ind. Filed Aug. 11, 1928. 5 claims. (Cl. 91-67.9).

1,809,286. Pulp of high whiteness and strength and process of producing same. George A. Richter, assignor to Brown Company, Berlin, N. H. Filed July 1, 1925. 18 claims. (Cl. 92-11).

1,809,287. White wood pulp for high grade paper manufacture. George A. Richter, assignor to Brown Company, Berlin, N. H. Filed Nov. 18, 1930. 3 claims. (Cl. 92-3).

1,809,312. Process of producing wood pulp of high alpha cellulose content. George A. Richter and Milton O. Schur, assignors to Brown Company, Berlin, N. H. Filed Apr. 19, 1927. 3 claims. (Cl. 92-16).

1,809,316. Water resistant fibrous articles and their manufacture. Dillon F. Smith, Ernest J. Pieper and Clarence C. Vogt, assignors to Armstrong Cork Company, Lancaster, Pa. Filed Jan. 9, 1929. 11 claims. (Cl. 92-21).

1,809,415. Method and apparatus for making photographic film backing paper with thin edges. John G. Jones and Haywood G. Dewey, assignors to Eastman Kodak Company, Rochester, N. Y. Filed Sept. 25, 1929. 13 claims. (Cl. 92-70).

1,809,427. Process and apparatus for manufacturing paper. John H. Spohn, Jr., assignor to Chemical Development Co., Ltd., San Francisco, Calif. Filed Nov. 3, 1928. 2 claims. (Cl. 92-11). Process of recovering reagents from black liquor.

1,809,472. Method of pressing corrugated cardboard flat in places. Ludwig Clemens, assignor to the Firm Wezel and Naumann Aktiengesellschaft, Leipzig, Germany. Filed Apr. 18, 1928. 1 claim. (Cl. 154-2).

1,809,499. Method of manufacturing cellulose according to the sulphite method. Torsten E. Waenerlund, assignor to M. O. Och Domsjö Aktiebolag, Ornskoldsvik, Sweden. Filed Sept. 8, 1930. 4 claims. (Cl. 92-11).

JUNE 16, 1931

1,809,852. Suction plate machine. William C. Jay, assignor to Sanitary Products Corporation, Philadelphia, Pa. Filed May 29, 1930. 20 claims. (Cl. 92-56).

1,809,853. Art of box making. Cutler D. Knowlton, assignor to Hoague-Sprague Corporation, Lynn, Mass. Filed Aug. 29, 1927. 26 claims. (Cl. 93-36).

1,809,937. Inlet for paper making machines. Forrest Hilsheimer, Chillicothe, Ohio. Filed Apr. 20, 1929. 8 claims. (Cl. 92-44).

1,810,145. Process of decorating paper. Harry M. Ross, assignor of one-half to Beveridge Paper Company, Indianapolis, Ind. Filed Aug. 3, 1928. 3 claims. (Cl. 91-67.9).

1,810,316. Art of making deckle edge paper. William J. Lamory, assignor to American Writing Paper Company, Holyoke, Mass. Filed Dec. 21, 1928. 6 claims. (Cl. 92-68).

1,810,398. Method of and apparatus for digesting wood. Paul E. Hodgdon, Munising, Mich. Filed May 27, 1929. 22 claims. (Cl. 92-7).

1,810,433. Optical apparatus for determining finish on paper. Charles H. Milligan, assignor to The Champion Coated Paper Company, Hamilton, Ohio. Filed July 5, 1929. 10 claims. (Cl. 88-23).

1,810,456. Suction device of paper-making machines. Tario Yonekura, Takaoka, Japan. Filed July 26, 1928. 3 claims. (Cl. 92-51).

1,810,472. Process of recovering resinous by-products in the manufacture of wood pulp. Edward H. French, Columbus, Ohio. Filed Oct. 29, 1928. 10 claims. (Cl. 87-2).

1,810,483. Stencil sheet. Charles F. Kumli, assignor to Selectograph Company, Chicago, Ill. Filed Dec. 20, 1928. 14 claims. (Cl. 41-38.6).

1,810,484. Stencil sheet. Charles F. Kumli, assignor to Selectograph Company, Chicago, Ill. Filed Dec. 20, 1928. 15 claims. (Cl. 41-38.6).

1,810,728. Manufacture of paper. Harold R. Rafton, assignor to Raffold Process Corporation, Lawrence, Mass. Filed Nov. 27, 1928. 10 claims. (Cl. 92-21). Filler.

1,810,729. Manufacture of paper. Harold Robert Rafton, assignor to Raffold Corporation, Lawrence, Mass. Filed Nov. 27, 1928. 15 claims. (Cl. 92-21). Filler.

1,810,845. Top screen for wood pulp digesters or the like. Einar Morterud, Torderod, near Moss, Norway. Filed Mar. 19, 1930. 3 claims. (Cl. 92-7).

JUNE 23, 1931

R18,111. Roll. Frederick R. Woodward, assignor to Stowe and Woodward Company, Newton Upper Falls, Mass. Original No. 1,787,890, dated Jan. 6, 1931. Application for reissue filed May 2, 1931. 8 claims. (Cl. 92-49).

1,810,930. Paper corrugating machine. Karl Sieg, assignor to Samuel M. Langston Co., Camden, N. J. Filed Oct. 24, 1928. 10 claims. (Cl. 154-30).

1,810,964. Arrangement of wet presses on paper and board making machinery. Walther Heller, assignor to J. M. Voith, Heidenheim-on-the-Brenz, Germany. Filed Aug. 10, 1929. 4 claims. (Cl. 92-49).

1,811,212. Wall board. Harry C. Rayner, assignor to Bemis Industries, Incorporated, Boston, Mass. Filed Sept. 10, 1926. 3 claims. (Cl. 72-124).

1,811,268. Method of preparing a liquor for the production of sulphite cellulose. Gustaf Haglund, assignor to Patent Aktiebolaget Grondal-Ramen, Stockholm, Sweden. Filed Jan. 4, 1929. 2 claims. (Cl. 92-11).

1,811,613. Mottled or colored shingle and method for producing it. Albert L. Clapp, assignor to The Flintkote Company, Boston, Mass. Filed Mar. 7, 1924. 6 claims. (Cl. 92-21).

1,811,741. Continuous beater for paper making. Benjamin M. Bishop, assignor to The Terre Haute Paper Company, Terre Haute, Ind. Filed Oct. 7, 1929. 5 claims. (Cl. 92-23).

1,811,783. Method for making white and bleached wood pulp suitable for the manufacture of paper without addition of cellulose. Ernst Egerus, Niklasdorf-on-the Mur, Austria. Filed Mar. 28, 1929. 4 claims. (Cl. 92-11).

JUNE 30, 1931

1,811,864. Process of liberating fiber from bagasse or the like. George A. Richter, assignor to Brown Company, Berlin, N. H. Filed Jan. 20, 1927. 7 claims. (Cl. 92-14).

1,811,870. Means for and method of treating fourdrinier wire belts. Albert B. Weissenborn, assignor to Appleton Wire Works, Appleton Wis. Filed Nov. 13, 1929. 19 claims. (Cl. 140-148).

1,811,925. Coated fibrous material. Raymond E. Garrett, assignor to Armstrong Cork Company, Pittsburgh, Pa. Filed Mar. 9, 1927. 2 claims. (Cl. 154-46).

1,812,148. Paper maker's drier felt. Thomas Hindle, Hashingden, England. Filed Jan. 28, 1930. 2 claims. (Cl. 139-408).

1,812,201. Paper sorting machine. Peter F. Denner and Job C. Estes, Kalamazoo, Mich. Filed Aug. 30, 1928. 9 claims. Cl. 214-11).

1,812,278. Paper making machine. George S. Witham, Sr., Hudson Falls, N. Y. Filed Mar. 21, 1928. 9 claims. (Cl. 92-44). Slice box, etc.

1,812,397. Process of and apparatus for oxidizing metal sulphides and making sulphur dioxide. Horace Freeman, assignor to The Sulphide Research Corporation, Limited, Montreal, Canada. Filed Jan. 17, 1929. 24 claims. (Cl. 75-60).

1,812,575. Process of manufacturing paper pulp. Hamilton D. Wagnon, Palouse, Wash. Filed Feb. 19, 1929. 1 claim. (Cl. 92-13). Uses sal soda and quick lime.

1,812,675. Manufacture of valuable products from lignin sulphonic acid (sulphite cellulose waste). James Baddiley, Arnold Shepherdson and Anthony James Hailwood, assignors to British Dyestuffs Corporation, Limited, Manchester, England. Filed Sept. 9, 1927. 3 claims. (Cl. 8-6). Use of oxidized product with dyes.

1,812,693. Manufacture of new derivatives from sulphite cellulose waste. Anthony James Hailwood, assignor to British Dyestuffs Corporation, Limited, Manchester, England. Filed Sept. 26, 1927. 5 claims. (Cl. 252-7). The waste is treated with ammonia above 110 deg. C.

1,812,749. Resinous material and method of making the same. Roy H. Kienle and William J. Scheiber, assignors to General Electric Company, Schenectady, N. Y. Filed Apr. 20, 1929. 13 claims. (Cl. 92-21). Paper is impregnated with a condensation product of aniline and formaldehyde.

1,812,795. Sulphur burner. Michael J. Leahy, Muncy, Pa. Filed Jan. 18, 1930. 8 claims. (Cl. 23-278).

1,812,812. Suction roll. Edward Tatum Street, assignor to Downingtown Manufacturing Company, Downingtown, Pa. Filed Oct. 24, 1929. 18 claims. (Cl. 92-53).

1,812,832. Filled pulp and method of making the same. Harold Robert Rafton, assignor to Raffold Process Corporation, Lawrence, Mass. Filed Dec. 11, 1928. 28 claims. (Cl. 92-40). Alkaline filler.

Development of the Sulphite Process*

By L. E. Jonte[1]

The inception of the sulphite process was about sixty-six years ago—1866 and 1867 to be exact—by an American chemist, Benjamin Clew Tilghman. The object of his process was to produce from wood a fibrous material suitable for the manufacture of paper, by removing from the wood the encrusting materials and segregating the pure fiber.

The first attempts were made with a solution of sulphur dioxide gas in water. The resulting pulp, although cooked, was dark in color. An examination of the waste liquors revealed quantities of sulphuric acid. To this acid was attributed cause for the poor color. Accordingly, a base was introduced to neutralize the sulphuric acid, the base consisting of calcium and magnesium in the form of lime. These experiments proved very satisfactory in that the finished pulp was of a good color and possessed easy bleaching qualities. It is very significant that, except for the refinements and economies of operation, the process remains essentially as it was at the beginning—bisulphite liquor, heat, eighty pounds pressure and eight hours cooking time. Many other processes have been tried in an attempt to obtain the same quality of pulp as that obtained from the sulphite method but, apparently, none has met with the same degree of success; witness, the survival of the process. Ideas and processes are of value only when they can be used economically. This must have been true of the sulphite process.

I believe that the refinement of the method of preparing wood fiber dates back to about the time when instruments were introduced to control the cooking. Previous to the use of these instruments, the cooking operation was dependent entirely on the skill of the operator; the appearance of the pulp, the smell toward the end of the cook, the test of the liquor and the conventional glass thermometer being his guide. These instruments, as research began to prove that definite schedules of temperature and pressure were necessary, made it possible for cooks to follow pre-determined charts which, together with the tests used formerly, produced pulps of higher quality and yields than had been produced previously. Research was proving that there was a definite relation between pressure, temperature and acid concentration, which would give the best results. Also that the kind of wood being cooked, its age, moisture content, chip size, etc., had a very definite bearing. These facts, of course, were known to a certain degree before the advent of cooking instruments, but the instruments made it possible to more fully utilize the information at hand.

Recent developments point to the time when a cook will have no more work other than to push a number of buttons and the cooking will proceed along a pre-determined path, follow a curve, turn on steam, turn off steam, regulate the relief and automatically blow the digester when the operation is complete. This is just a little bit ahead of present methods, but is within the realm of possibilities.

The formation of the Technical Association of the Pulp and Paper Industry and its consequent growth to include so many varied types of men and industries, has been, perhaps, the greatest agency in the recent development of both pulp and paper making, and is beginning to take these industries out of the class called "art," and place them under what we would call a science. Through its publications, research data and information otherwise obtainable only through arduous effort, has been placed in the hands of every operator in the world who is interested sufficiently to avail himself of the opportunity. The good done by this Association is a monument to what co-operation and co-ordination of effort can accomplish.

In addition to the work of the Technical Association, the Federal Government, through its Forest Products Laboratory at Madison, Wisconsin, has made contributions of great value. Outstanding in the sulphite industry is the work of Miller & Swanson which was carried on while they were connected with the Forest Products Laboratory. Their work has been published in book form entitled "Chemistry Of The Sulphite Process." This text is of great value and should be in the library of every man who is at all interested in sulphite pulping.

Investigations in both processes and equipment have brought about many valuable and interesting developments. Studies have been conducted covering such points as temperature, pressure, acid concentrations, cooking time, moisture content of chips, size of chips, penetration periods, transfer of heat both within the digester and through the shell, the introduction of steam at more than one point, the use of bases other than calcium and magnesium, together with many other problems, the net result to the industry being intangible. We are learning that wood, which only a few years back was considered wholly inadequate for sulphite pulping, is now being used successfully. No doubt certain fibers which we now consider useless economically, will be utilized in the near future. The number of developments and accomplishments is legion.

Heat Recovery and Forced Circulation

In recent years the recovery of heat from waste liquors and the use of hot acid to aid penetration has been developed to the point where rather outstanding results have been accomplished. Forced circulation has now become a reality, thanks to the metallurgists for developing acid-resisting metals.

Equipment manufacturers have been most aggressive in keeping in step with the procession. Facilities for handling pulpwood, both from ships and from cars, have been improved. Pulpwood is now being handled more expeditiously and at lower labor and power costs. The use of the gasoline type of crawler crane has proved of great advantage. It is mobile in that it can get throughout the whole yard, unload from cars to pile or to pond, and has a greater radius of operation than some of the equipment in general use. There is also the added advantage from a crawler crane, of being able to use it around the yard for various kinds of construction work, unloading machinery, hoisting into place, picking up heavy loads and carrying them from place to place, proving itself a general utility machine.

Pulp is being piled in a systematic manner with regard to decay, fire protection, accessibility, and the rotation of supply insuring a uniform moisture content.

The manufacturers of transfer conveyors have improved the quality of their steels, as well as the type of equipment, which has resulted in better handling at lower costs.

Wood Preparation

The drum barker, although a much better piece of equipment mechanically than some of the first drums used, has still room for improvement, barking losses are still too high. We are getting more cords through the drum at lower maintenance and power costs, but we have not overcome yet the excessive barking losses.

In recent years, considerable attention has been given to chipping equipment. The improvements here have been the use of anti-friction bearings, which has resulted in lower power costs, and a more uniform position of the knives with respect

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* Presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., Feb. 17-19, 1931.
Contribution of the Acid Pulping Committee.

[1] Member TAPPI, assistant general superintendent, Hoberg Paper and Fibre Co., Green Bay, Wis.

to the bed plate, the disc now traveling in one plane. An added improvement has been the mounting of the rotor of a synchronous motor directly upon the chipper shaft, which has also reduced the power consumption and improved the general power factor.

The first type of chip screens were the rotating type, adopted from other industries such as mining and gravel. Then appeared the shaker type of screen and of recent years the electrically operated vibrating type — a new development, being operated through a solenoid using a low frequency current. In general, the rotating screens have been found better for the removal of sawdust, the flat screens superior for the removal of slivers. Opinion, however, is very much divided as to which is the better screen to use.

Concrete chip bins have appeared in place of the former conventional wooden bins, and these bins have been designed from the standpoint of ease in emptying. New mills, in some cases, have dispensed with the customary chip bin, and in its place have provided suitable storage on the ground level from which the chips are conveyed by transfer belts, or other suitable conveying equipment directly into the digester.

Digesters

Digester filling devices are now in operation. It is stated by the manufacturers of this equipment that it is possible to increase the quantity of chips from fifteen to twenty per cent. It is the opinion of some operators that it is not advisable to increase the density of the chips to this degree for fear of circulation troubles, and they recommend not more than a five to seven per cent increase. The economies obtained from increasing the tonnage per cook are obvious.

Digesters have come in for their share of attention. The shape has been studied in an effort to produce a shell offering the least resistance to circulation, and too, the movement of stock during the blow period. Double butt straps are used universally in place of the former single straps. We are finding that there is a certain size of shell which gives the best results from the standpoint of handling, as well as economy. Studies have been made of the composition of the material entering into the lining brick, so as to give the brick the proper degree of porosity, heat resistance and expansion. Experience has taught that the mechanics of lining are exceedingly important, as well as the curing period and the method of making the first cook in a new lining.

One of the outstanding developments of recent years has been the new chromium nickel alloys, or the so-called 18-8 type. These metals are rapidly supplanting bronze and copper, and justly so, because of their economies, their lighter sections, they do not coat to as great a degree and their maintenance are not so high. They are being used for digester fittings, for relief lines—both valves and piping, for blowpipes and valves, for coolers, blowpit bottoms, acid pumps and many other numerous installations around a sulphite mill where metals are subject to corrosion. There have been many alloys appearing on the market under various trade names, being manufactured by a number of reputable companies. There have been some isolated cases where foundries not equipped to produce these alloys have attempted them with rather disastrous results to the mill using them and to the foundry producing them. It would seem that because each application of this alloy is more or less a specific one, the user should purchase only from a reliable manufacturer, and be sure that he is getting the proper type of metal for the particular use to which it is to be put. Many avenues for research have been opened by the introduction of this metal.

Present Problems

The disposal of waste sulphite liquors has been a gigantic problem and still is. Page after page has been printed in the Technical Association publications and elsewhere on ideas for the successful disposal of this byproduct, and literally hundreds of patents have been issued. Those processes which appear to be fairly successful, and about which we have some information, practically all embody the principal of evaporating to a given concentration. These concentrated liquors are being used as fuel, being burned directly with coal—for briquetting coal—as a core binder for foundry use, as a tan extract, etc. From information at hand the briquetting of coal appears to have the greatest promise. There are, of course, ideas being worked out about which we have very little data and, consequently, are not in position to comment.

No doubt one could continue at length discussing all of the developments in recent years. The number is large indeed. I have tried to touch on but a few of the more important ones.

Problems which demand the attention of the industry, as I view them are:

1—The more efficient utilization of the wood now being cooked.

2—Methods for utilizing more types of wood.

3—A decision covering the controversy between the advocates of high acid and acids we are now using.

4—A successful method to combat pitch troubles.

5—Better control methods for cooking.

6—A uniform method for evaluating pulp.

7—The disposal of the waste liquor problem.

8—A better understanding of paper making by sulphite superintendents, and a more thorough knowledge of pulp producing by paper superintendents.

Heat and Power Committee Annual Report

The plans of the Heat and Power Committee call for activities along the following lines:

1. Generation and transmission of steam and power.
2. Utilization of heat in drying pulp, paper and board.
3. Utilization of heat in pulping.
4. Power requirements pulping and paper making operations.

Organization of these activities is developing slowly. This year the committee presented brief surveys of developments in the first two fields only. These surveys have been prepared by the chairmen of the respective sub-committees and are appended.

Generation and Transmission of Steam and Power

Karl A. Lefren, chairman of the sub-committee dealing with this subject reports as follows:

Looking back over the past year one may say that in spite of the depression there has been notable advancement in the engineering field covering power generation and transmission. It is not our purpose to go into a review that would be nothing but a repetition of a number of other reviews which are published by different agents and which fully cover the field, and the best service we can render in this connection is to ask the membership to refer to those reviews We would mention specifically those published by the Fuels and Power Divisions of the A. S. M. E., General Electric Company, and the Westinghouse Electric and Manufacturing Company, "Power," and "Power Plant Engineering."

A careful study of all of these we believe will leave everyone with a complete and concise picture of the power plant engineering in 1931. In addition to this we might call attention to the World-Power Conference held in Berlin last summer as an outstanding happening. The proceedings from that meeting are now published and available.

The investigation of the properties of steam and the revision and extension of the steam tables have made great progress during

the last year through international organization. During last year the A. S. M. E. published a new set of tables by Joseph H. Keenan which represent the latest complete data and ought to be uniformly used.

The boiler development in this country has been marked by a further increase in size and we now have single units in operation capable of developing 1,200,000 pounds per hour. Abroad, both in Germany and in England, new principles in boiler design have been developed, most noteworthy of which is the principle of the double boilers. The primary boiler uses nothing but its own distilled water over again. The steam that boiler generates is secondary steam of a slightly lower pressure by being condensed in submerged coils inside the water space of the secondary boiler. This makes it possible to eliminate feedwater troubles which for pressures of 600 pounds and over today cause more grief than any other one item in boiler operation. The principle of a boiler with distinct elements for heating the water to the boiling point, evaporating it and superheating the steam seems also to be coming into its own more and more. The integral design of the whole unit including furnace, setting, boiler, economizer, superheater and air preheater is also gaining over the old method of coordination of separate units into one combination.

Rapid advance of pulverized coal firing and the extended use of natural gas were also noteworthy developments in the past year. The turbines have become larger than usual and are being built for ever increasing pressures and temperatures. We are now beginning to use temperatures far above that which in 1929 were considered the limit in this country, and are reaching out for 800 and 900 deg. F. steam. One of the most interesting new installations is the 1,800 pound pressure engine job at the J. P. Carey Company which may be in operation now.

Interesting installations in paper mills during the last year included:

Gardner & Harvey Company—Stratton furnace installation.

Waldorf Paper Products Co.—600-pound pressure boiler plant and application of the steam accumulator to load conditions which usually are not considered as suitable.

Crocker Burbank & Company—400-pound central power house for nine mills.

The Power House erected by Alabama Power Company to serve the Mobile plant of the International Paper Company was further development of cooperation between public service interests and industrial corporations looking towards the elimination of the individual power house.

New Haven Pulp and Board Company—400-pound pressure boiler plant.

Champion International Company—400-pound pressure boiler plant.

Gulf States Paper Corporation—450-pound pressure boiler plant and use of concentrated pulp with liquor for fuel under boilers

In the field of hydroelectric power one may note the extremely high efficiencies reached, the Kaplan low head wheel and tide water power with different power stage schemes.

The further interconnection of power systems has progressed to an extent that has made for economy in installed capacity and reliability of service.

Utilization of Heat in Drying Pulp, Paper and Board

A. E. Montgomery, chairman of this sub-committee indicates the following developments:

No new developments have appeared in the field covered by our sub-committee during the past year. Progress in the utilization of previous developments, however, discloses certain trends which may be considered indicative of what may be expected in the future.

Efforts to secure more efficient heat utilization in drying pulp and paper have centered on the problem of more efficiently carrying away of the evaporated water. On one hand is the increasing use of the vacuum drier permitting of drying the product at reduced temperature in an atmosphere of steam without the use of air as a carrying medium. On the other hand are intensified efforts to reduce the cost of using air as the carrier agent by reducing the amount of air required, and by securing greater heat recovery.

The past year has seen new pulp drying machines installed with the vacuum drier in order to secure the benefits which presumably result from drying at a lower temperature and without the presence of air.

During the past year also a new large news machine in Canada has been arranged so that the drier section may be operated in a totally enclosed space, and although it has not been put into operation at this writing it is expected that considerable heat economy will result.

The movement towards the use of hoods has noticeably advanced. This is believed to be a distinct step towards more efficient heat utilization in drying.

It is the belief of your sub-committee that for the proper study of heat utilization in pulp and paper drying it is essential to regard the entire machine room as a unit of which the driers are an inseparable part, and to consider the heat requirements of the machine room as a more significant quantity than the requirements of the drier only. This is not a new conception, but it is one too frequently slighted. The heat requirements of the machine room other than those of the drier are difficult to measure; furthermore they are more intangible and hence their importance is often not fully appreciated.

Your sub-committee believes that the concept of heat balance applied to the entire machine room will prove an aid in developing more efficient heat utilization by promoting a clearer and more general understanding of the problem, and we have planned to develop a workable heat balance code.

Your sub-committee suggests that a tabulation of data on evaporation per square foot of drying surface under various conditions would be of great value, enabling one to know what production any machine should dry under given conditions of type of paper, moisture content, and back pressure. There is a lack of comparative data of this kind. We recommend that this be a subject for study during the coming year.

The future undoubtedly conceals entirely new methods of drying paper, and it may be regarded as significant that no progress has been made in drying a newly formed web of paper or paperboard in any other manner than passing it over steam heated, rotating cylinders. Perhaps here lies the greatest challenge to our efforts towards securing all the desired qualities of a paper drier and efficient heat utilization in paper drying.

JOHN D. RUE, Chairman

Commercial Classifications of Oil Lubricants

Engine oils for the power house, for example, are divided somewhat arbitrarily into three general classes: medium body, heavy and the compounded engine oils, light engine oils rarely being of much value in power plant service. Both medium and heavy engine oils should be straight mineral oil products, the viscosity of the former being in the neighborhood of 200 (Saybolt) at 100 degrees Fahrenheit and of the latter anywhere from 250 to 325 at 100 degrees, depending upon the service demands. For the medium oil, the specific gravity (Baumé scale) should be about 30, not more than 25, while for the heavy oil a specific gravity of around 24 degrees Baumé is about right. In flash point, fire point and cold test temperatures, the differences are quite marked, being for the medium body oils about 400, 450 and 32 degrees respectively and for the heavy bodied oils around 400-450, 450-500 and 35-40 degrees Fahrenheit.

The compounded engine oils, which should be a blend of high grade mineral stock to which a relatively small proportion of lard oil is added, should be almost as heavy as straight mineral heavy engine oils, between 24 and 25 degrees Baumé, with a viscosity of 190 to 240 at 100 degrees. A flash point around 400 and a fire point some 50 degrees higher, with a cold test at about 35 degrees Fahrenheit, complete suitable class specifications.

Research and Development in the Pulp and Paper Industry—A Look Ahead*

By Gustavus J. Esselen[1]

As you all know, it was the habit of the Coolidges, while in the White House, to go to church together every Sunday morning. One Sunday morning it is said that Mrs. Coolidge was indisposed and the President had to go to church without her. Naturally, however, on his return, she was much interested to hear about the service and so inquired as to the subject of the sermon. "About sin" was the President's laconic answer. "Well," pursued Mrs. Coolidge, "What did the minister say about it?" "He was against it!" Some of you may have anticipated what I am going to say with the thought, "Oh yes, he is in favor of more research and development." It is true, I am, and so are you and the companies you represent or you would not have been attending all of these scientific meetings these past two or three days, at which you have heard many interesting presentations of the results of technical study and research.

An analysis of the situation might be made somewhat along these lines. The results of recent investigations to which we have listened this week represent the present so far as research is concerned. The past, you brought with you in the form of your own knowledge gained through study and experience. The future, however, has not been discussed in these meetings and as a possible relief from sessions where we have been considering only accomplished facts and perhaps suppressing our imaginations for a time, it may be appropriate to look ahead a little and discuss some trends which seem to be looming up. If research is to amount to more than mere trouble shooting and do some real pioneering, it is absolutely essential that we take occasion from time to time, to let our imaginations operate under such guidance as we can give them, to make some suppositions as to the trends in the future, so that research programs may be mapped out to meet the new conditions. In doing so, it is fully recognized that the lot of the prophet is hazardous; posterity regards him as either a fool or a genius depending upon whether or not luck was with him. In any case, however, he usually stimulates thinking and in that way justifies his daring.

Papermaking Materials

In a striking article in one of our popular magazines recently there was presented a list of prophecies which the author claimed would be old-fashioned ten years from now. The one that particularly caught my eye was that within the next ten years paper will be replaced by material which does not depend upon the slow growth of trees for its production. At first this seemed like just another prediction, synthesized in a moment from thin air and likely to evaporate in another moment to the tenous medium from which it came. A second reading, however, disclosed the fact that the suggestion is entitled to more than passing notice for two reasons. In the first place, the man who made the prediction has already demonstrated that some of his ideas which appeared no less startling were really quite practical and workable; and in the second place—and more important—his predictions are based on economic desirability, and therefore, in these days of rapid scientific advances, they have a certain reasonableness about them.

In other words, this prediction, because of its environment, deserves at least a second reading, even though one would still be inclined to be skeptical in view of the enormous available resources of wood and the fact that in many parts of the world, wood can be grown as fast as it is used and this not in inaccessible places. In fact, the recent development of the rapid growing hybrid poplars would seem to be sufficient justification for real skepticism.

It must be admitted that, to be valid, any reasoning along lines such as these will have to apply equally well to wood when used as raw material for purposes other than papermaking. Or put in a slightly different way, if wood is still to be so abundant and cheap that it is unreasonable to expect a substitute for it as a papermaking material in the near future, then on the same basis it would also be unreasonable to expect a substitute for it as raw material for any other process.

It was only about five years ago, however, that another of the large industries depending upon wood for its raw material, had a very rude awakening. It discovered very suddenly that its raw material was not so abundant and so cheap but that more advantageous substitutes could be found. You will recall how a tank ship appeared in New York harbor one fine day laden with methanol made synthetically from coke and steam. This cargo was readily sold at a price said to have been considerably below what it cost to make the same material from wood. In other words, this industry found that the economic status of its raw material did not afford it the security on which it had been depending, almost as a matter of course.

Since this has actually happened to one large wood-using industry, we in the paper industry can no longer sit back quite so complacently and say that paper will always be made from wood; and if not, what are some of the possibilities which loom up on the horizon? In considering these we must be careful to avoid the attitude of the silk industry a little over twenty years ago, when it was considering the threatening competition of rayon. A committee was appointed and after many months of careful study it solemnly reported that the inherent difficulties involved in this new synthetic fiber were so great that it was quite apparent that it could have no real future. Yet today the world uses much more rayon than it does natural silk and the proportion is increasing.

If we are not going to be dependent upon the slow growth of trees for our paper, where is it coming from? In a consideration of this subject it must be recognized that there are two possible lines of approach. One involves continuing to make our paper from cellulose but deriving that cellulose from some source other than the slow growth of trees. The other depends upon doing away entirely with cellulose as raw material and producing a synthetic paper-like material directly. Those who are familiar with recent experiments in this country involving the use of annual crops as substitutes for trees will probably agree that little promise seems to be offered along this line. But before reaching any definite conclusions, let us see what chemistry is doing in other fields which may throw some light on our problem.

Our common ethyl alcohol, formerly always made from grain, offers a somewhat analogous situation. If alcohol was wanted it was first necessary to grow corn, which required several months, following which the corn was fermented, which re-

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quired several days, and finally the alcohol was distilled off. Today, in the space of a few hours, given the proper equipment and catalysts, we can build up ethyl alcohol synthetically from the simplest of materials and entirely independent of any slow process of natural growth. The same is true of butyl and amyl alcohols. The former had been made in recent years by a special fermentation of corn, and the latter had always been obtained in small quantities along with ethyl alcohol, but at the present time one concern alone is producing 150,000 gallons monthly of a mixture of these alcohols by a relatively simple synthetic process.

Synthetic Cellulose

These are a few examples of a distinct trend in present day chemical technology toward substituting direct synthetic processes for the longer processes of natural growth. The remarkable thing, however, is not so much the trend as the rate at which progress is being made along this line. Five years ago, synthetic cellulose would have seemed at least fifty years away; today it would seem of if we might have it in much less time. The problem is being actively studied from one angle in the University of Liverpool and from another angle at McGill University in Montreal. These specialized efforts, taking advantage of all the recent knowledge of direct synthetic methods, will surely reach the goal sooner or later, and as has been said before, progress along these lines is being made at such an unusually rapid rate that we must be prepared for the announcement at any time.

It would be fascinating to speculate a little further as to the form in which a synthetic cellulose might become available to us, but perhaps we are already on somewhat thin ice, and it will probably be well to stop here, or at any rate, to retrace our steps to firm ground and start out in another direction.

You are probably all familiar with the rapid strides which have been made recently along the lines of synthetic resins. We already have very attractive non-brittle substitutes for porcelain made from such materials and the synthetic resins are further giving evidence of again upsetting the paint and varnish industry as the advent of pyroxylin lacquers did about eight years ago. It is not out of the question that something along the line of what we now call synthetic resins may be the means of fulfilling the startling prediction which we have been considering. In fact, I have already seen in the laboratory, thin sheets which bore no chemical relation whatsoever to cellulose, yet which could be made to take printing. They did not, to be sure, have all of the properties which are desirable in a really good sheet of paper, but at least they demonstrated that a thin, tough material which would take printing could be prepared by a relatively simple process which did not involve the slow growth of trees nor the time-consuming operations required for converting these first into pulp and then into paper. To be sure, it is not yet economically competitive with paper but at least it may prove to be one of the ways in which the prophecy may be fulfilled.

Lignin as a Chemical Base

In brief then, we have a startling prophecy to the effect that within ten years, paper will have been supplanted by a material not dependent upon the slow growth of trees, and when we stop to consider the possibilities, we are forced to admit that while it does not at the moment appear very likely of immediate fulfillment, nevertheless there are at least two avenues of approach along which it may come, and it certainly is in line with the present trend of development in chemical technology. And if it comes, what then? There would still be forests and we should want to use them. Perhaps by that time we shall know what to do with lignin. When we think of wood, we almost always think of it as the source of cellulose, largely because we have no adequate uses for the lignin. However, there is almost as much lignin in a tree as there is cellulose, and the lignin has already attracted the attention of investigators as an interesting chemical raw material with real possibilities. In our own Forest Products Laboratory, this material has been the subject of a major investigation during the past year, and results of value are sure to come ultimately from this work. In other words, we could use our forests as sources of lignin, and the cellulose, if not required for pulp and paper, could be set free as a raw material for chemical transformation about which we have been hearing so much in recent years. Furthermore, it is not at all out of the question that the lignin may some day be at least as valuable as the cellulose.

The obvious reaction of the pulp and paper manufacturers to these suggestions will be to inquire whether they should be expected to support and finance research which would have the avowed objectof putting them out of business. Of course this is probably too much to expect, but on the other hand, as soon as it appears economically desirable to accomplish a certain end, it is a relatively short time in these days of rapid scientific advances before it is accomplished. It would seem obvious that if somebody is going to make your present methods of manufacturing obsolete, that "somebody" better be yourself. In any case, it behooves the manufacturer of pulp and paper to keep actively informed as to what is going on in the field of synthetic chemistry, not only to make sure that chemical paper does not come on him unawares like synthetic methanol, but also so that he can take advantage of new uses for lignin as they may become availbale.

Of course none of us expect that the pulp and paper industry will go immediately into the discard, in spite of the possibilities which have been pictured in this paper. Nevertheless these examples may serve to illustrate the necessity, particularly in these days, for continued study and research. If we want to stay anywhere near the front of the procession, it is essential that we provide for a far-sighted research and development program. Whether the pulp and paper industry will progress along the lines indicated above or along others, is of course problematical, but whatever progress is made will come only as the result of well directed, painstaking, persistent research.

Materials Handling Equipment

Cranes, hoists, tractors and trucks are simply tools for use in cutting materials handling costs. When and where they should be employed depends largely upon local conditions and plant layouts, governing factors which are not always susceptible of much modification. True, the simplification of the handling tasks and the elimination of avoidable handling operations are ordinarily to be desired and the use of conveyors and elevators where feasible, but it is upon the proper use of these aforementioned tools that the refinements in handling costs reductions are usually dependent. Why these tools should be employed and for what functions they have demonstrated merit are considerations, consequently, with which every mill should be concerned.

Expeditious and economical handling of materials to, in and from the mill is today one of the chief considerations in profitable plant operation. It is one, moreover, which affords opportunities of effecting still further desirable economies in virtually every mill, for methods and systems differ in nearly every establishment and it is very questionable whether the best solution to the complex problem has been consummated as yet in any mill. Some of the installed systems are very much better than others, of course, and excellent judgment would seem to have been shown in the choice of the tools employed in many cases, but so many factors have to be taken into consideration, the influence of which upon production costs may even be continually varying, that there are comparatively few instances where a mill can afford to rest content with its existing methods of materials handling.

Current Paper Trade Literature

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts and Bibliography of the Technical Association of the Pulp and Paper Industry

Clarence J. West, Chairman

For photostatic copies of articles appearing in the Abstract Section, address the chairman of the Abstracts Committee, Dr. Clarence J. West, National Research Council, 21st and B. Streets, Washington, D. C. The charge for this service is: Photostats 9 x 11 inches, 18 cents each; 18 x 11 inches, 35 cents each; 22 x 18 inches, 70 cents each; minimum charge, 50 cents. Payment should be made upon receipt of invoice. Copies of United States patents may be obtained from the U. S. Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.

Boards

Board for Cartridge Cases. H. Postl, Vienna. Wochbl. Papier-Fabr. 61, No. 22 (May 31, 1930). Very rigid specifications are necessary for board used in cartridge cases since the cartridges are subjected to unusually hard conditions. The method of manufacture of such board is described.—J. F. O.

Isolation Board. Fritz Hoyer. Papierfabr. 28, No. 42: 670 (Oct. 19, 1930). A general description of the manufacture of board, with special reference to utilizing the waste products from papers and old rags.—J. F. O.

Process for Fastening and Tightening Compressed Board Flasks, Packings and such Compressed Articles; by Impregnation with Materials which Fills the Pores. Werner Dautwitz. Aust. pat. 118,464 (Jan. 15, 1929). A gelatinous material is compressed into the inner joints of the finished article so that the inner surface remains raw and porous in order to permit a layer of paraffine or wax or a similar substance to take better hold.—J. F. O.

Process for the Manufacture of Hollow Bodies from Cellulose or Cellulose Derivatives. Wolff & Co. and Emil Czapek and Erwin Bauer. Aust. pat. 118,231 (Feb. 15, 1930). The form is first submersed in a solution of cellulose and then in a coagulating bath and is completely or partially covered with layers of cellulose of various colors, according to finish desired.—J. F. O.

Resin Coated Pulp Board. Harold C. Harvey and Hubert L. Becher assignors to The Agasote Millboard Co. Eng. pat. 319,901 (Aug. 31, 1928). U. S. pat. 1,776,790 (Sept. 30, 1930). One or more sheets of fibrous material embedded in fluid artificial resin are superposed upon one face of a base board of compressed fibers intermingled with a fluxing binder such as acaroid resin, gilsonite, rosin, gum resins, "mineral pitch" or asphalt.—A. P.-C.

Fiber Board. Earl S. Edwards assignor to Panelyte Corp. U. S. pat. 1,778,147 (Oct. 14, 1930). Fiber board is made by heating a felting fibrous material such as dry wood pulp with a fusible material of organic asphaltic character, a water-soluble calcium salt such as calcium choloride and a water-soluble borate such as borax, and then pressing and drying the mixture.—A. P.-C.

Fiber Board. Roger W. Cutler and Joseph R. Coolidge, 3rd, assignors to Montan Inc. U. S. pat. 1,779,532 (Oct. 28, 1930). Air is forced under pressure into the microscopic cells and pores of unvulcanized fibrous material such as fiber board, and while the air is still held in the material under pressure it is impregnated with a melted waxy material, such as montan wax, which remains hard and brittle at high atmospheric temperatures but is sufficiently fluid at a temperature of 120°C. to be forced into the pores and cells of the material; the imprisoned air is then permitted to expand and thereby eject a portion of the impregnating material, followed by cooling and hardening. The product is suitable for electrical insulation, etc.—A. P.-C.

Laminated Wall Board. Philip W. Codwise assignor to Certain-teed Prod. Corp. U. S. pat. 1,780,743 (Nov. 4, 1930). A pulp is formed by beating with water a mixture of about 35% waste paper, 35% wood flour and 30% groundwood; the pulp is formed into plies, several plies are compressed between plies of sized wood pulp screenings and sawdust to form a coherent layer with rough surfaces and a thickness of about 0.08 inch and several layers thus formed are cemented together to form a rigid board suitable for use as a plasterbase board.—A. P.-C.

Production of Insulating Board from Cornstalks. C. E. Hartford. ind. eng. chem. 22: 1280-1284 (Dec. 1930). A brief illustrated description of the plant of the Maizewood Prod. Corp. at Dubuque, Iowa, where insulating board is made from cornstalks by the process developed by O. R. Sweeney at Iowa State College.—A. P.-C.

Wall Board. S. Joseph McDonald assignor to International Fibre Board Ltd. U. S. pat. 1,779,045 (Oct. 21, 1930). The boards are substantially rectangular in form. They are shaped so that, when arranged edge to edge in vertical and horizontal rows, the opposing edges of the boards will have tongue-and-groove engagement with one another, while the remaining opposed edges will be straight and will abut one another, but are provided with a series of equidistant wedgelike depressions to provide binding points.—A. P.-C.

Process of and Apparatus for Treating Paper Board. Richard Kastner and Herbert Schmolka. U. S. pat. 1,785,484 (Dec. 16, 1930). The wet sheets of pasteboard are formed into a pile and subjected to mechanical pressure at ordinary temperature. An alternating electric current is passed through the pile so as to heat and reduce the viscosity of the water, and the pressure is allowed to act for some time. The current is increased to still further heat the pile, and the pressure is finally reduced.—A. P.-C.

Production of Synthetic Lumber from Cornstalks. O. R. Sweeney and Robley Winfrey. mech. eng. 52: 849-851 (1930). Corn cobs or cornstalks can be made into a hard, dense material known as Maizolith. Waste agricultural material such as straw or cornstalks can be made into wood substitutes by hydrating, either with or without digestion with water or chemical solutions in refining machines, forming into a mat and pressing into board-like structures. Insulating lumber having a conductivity of 0.32 to 0.34 B.t.u. per sq. ft. per degree F. per hr. for 1 inch in thickness and a modulus of rupture of 300 to 800 lbs. per sq. in. is being made commercially. By subjecting the wet mat of pulp to simultaneous action of heat and pressure in varying amounts, wood substitutes of any strength and hardness or shape can be produced. A very light board having a conductivity of 0.24 B.t.u. per sq. ft. per degree F. per hr. for 1 inch in thickness and excellent acoustic properties has been made from cornstalk pith.—A. P.-C.

Method and Apparatus for Producing Fiber Board. Roland B. Respess assignor to Respats, U. S. pat. 1,770,430, July 15, 1930.—Incompletely cooked wood chips are ground by means of rotating wheels, in much the same way as in a kollergang, but in the presence of a loose abrasive such as sand. The sand is removed by a suitable washing treatment and the pulp made into board by known methods. In certain cases, the pulp may be used without removing the sand; e.g., the mixed pulp and sand may be mixed with Portland cement to provide a wood concrete in which the required proportion of sand or other aggregate may be considerably less than in ordinary

concrete, and the resulting material may be correspondingly lighter.—A. P.-C.

Process for the Manufacture of Asbestos Cement Pipes from Plates Formed on a Board Machine. Cherzog, Glarus. Swed. pat. 69,168 (Apr. 8, 1927). The manufactured plates are laid in plastic condition and without any special pressure around a mold surrounded by a water permeable covering and the whole compressed.—J. F. O.

Arrangement for Deaerating the Grooved Tube Arising in the Manufacture of Corrugated Board. Gunter Clemens. Ger. pat. 499,135 (Aug. 2, 1928). The sheet of corrugated board with its grooved roll is fitted onto the form resulting from the suction nozzles which are used. The air impregnated with steam existing at the union of the riffled sheet and the smooth sheet at the grooved rolls is carried off by these suction nozzles while the air entering through a preheater at approximately room temperature preheats the roll. With two sided corrugated board, the suction connections are formed recilinear with the heating plate.—J. F. O.

Process for the Manufacture of Corrugated Paper with Cross Corrugations Bent in a Sharp Angle. Jacob Moll. Ger. pat. 498,705 (June 23, 1929).—J. F. O.

Specialties

Electrical Insulating Paper. I. The Effect of Beating upon the Insulating Property for Electricity and Mechanical Properties of Paper. Katsumoto Atsuki and Keima Matsuoka. J. Soc. Chem. Ind. (Japan) 33 (Supp. Binding): 385-387 (Oct. 1930). Sulphite spruce pulp for viscose silk, contains 87.7% of alpha cellulose, 61% of water and a trace of ash, was treated in a small laboratory beater for various periods of time, at room temperature, in such a manner that the cutting and gelatinization of the fibers occurred simultaneously; the beaten pulp was made into sheets about 0.13 to 0.17 mm. thick on a Wilen sheet machine. The sheets were dried in the open air, and according to the kinds of tests a further drying was carried out to the required degree. The tensile, bursting and folding strengths were determined by means of the Schopper tensile tester, Ashcroft bursting tester and Schopper folding tester, respectively, at about 63% relative humidity and 20°C. The porosity was determined by the Emanueli porosimeter and the Schopper densometer. The absorption of oil was measured by immersing the paper in castor oil under vacuum. The dielectric breakdown voltage was determined by inserting the sample between two brass electrodes, 2.5 and 5.2 cm. respectively in diameter, and manipulating under exactly the same conditions. For calculating the breakdown voltage, the formula used was $V = cT^n$ in which $n = 0.8656$, and V and T are the voltage and thickness of the paper. Ten sheets were made at each beating period, and all the tests were carried out on each sheet. With increase in the beating time the mechanical properties increased to a maximum value and then decreased. The porosity and oil absorption decreased with increased beating time, while the break down voltage increased, rapidly at first and then more slowly. The results indicate that there is an optimum degree of beating which gives a high insulating power and the maximum mechanical strength to paper. The relations between the degree of beating and the properties of the paper, and the relations between the various properties are expressed by the following formulas: (1) $W = cT^n$ in which W is the oil absorption, T the time of beating, c is a constant, and n is less than 0. (2) $p = cT^n$ in which P is the porosity, T the time of beating, c is a constant, and N is less than 0. (3) $W = aP^n$, in which W is the oil absorption P the porosity, a is a constant, and $n = 0.284$. (4) $V = A + B \log A + c\ (\log I/P)^2$, or $V = -11440 + 118.6 \log I/P$, in which P is the porosity and V the break down voltage. (5) $V = A + B \log W + c\ (\log W)^2$, in which V is the break down voltage and W the oil absorption.—A. P.-C.

Electrical Insulating Paper II. The Dielectric Strength of Cellophane and of Paper impregnated with Plastics. Katsumoto Atsuki and Keima Matsuoka. J. Soc. Chem. Ind. (Japan) 33 (Supp. Binding): 387-388 (Oct. 1930). Viscose cellophane, prepared under proper conditions, was dried completely and the porosity and break down voltage were determined by the methods described in the previous paper. As the material is very hygroscopic and contains a trace of ash, the break down voltage was not as high as was expected. From the standpoint of its electrical properties, cellophane can not be considered as a solid cellulose mass. Paper made from viscose grade sulphite was impregnated with bakelite, pollopas and casein, respectively, by dipping in solutions of these plastics and drying at the optimum temperature for complete polymerization. The papers impregnated with backlite and with pollopas had higher break down voltages but lower mechanical strengths than the original paper; while the paper treated with casein had a lower break down voltage but nearly the same mechanical strengths as the original paper. It is considered that bakelite and pollopas are not suitable for the impregnation of electrical insulating paper because they make the paper brittle, while casein is somewhat hygroscopic and contains traces of electrolytes which lower the dielectric strength of the paper.—A. P.-C.

Durability of Paper. James Strachan Paper Mill 53, No. 51: 12-13 (Dec. 20, 1930). A brief discussion, bringing out the difference between chemical deterioration and mechanical deterioration, and also between the durability and permanence of paper itself and of books, the latter being practically assured by frequent reprinting of large editions on cheap paper.—A. P.-C.

Paper in the Electrical Industry. W. H. Anderson. Paper Mill 53, No. 52: 11-12, 14 (Dec. 27, 1930). A general description of the various uses to which paper is put in the electrical industry, and the properties of the different grades so used.—A. P.-C.

Rubberized Paper. Ernest Hopkinson assignor to Mechanical Rubber Co. U. S. pat. 1,779,772 (Oct. 28, 1930). After removing moisture from a web of paper pulp a top size is applied containing dispersed rubber, and the web is dried to form a sheet.—A. P.-C.

Manufacture of Sensitized Paper for Electrical Telegraphy or Image Producing Apparatus. Viktor Bausch and Felix Schoeller, Ger. pat. 511,165 (Jan. 19, 1928). Addition to Ger. pat. 511,164. Alkaline acting substances are added to the paper before or after drenching with the solution containing the iodide for the reduction stage.—J. F. O.

Copy Paper for Typewriters and Handwriting. Rudolf Kirsch, Ger. pat. 506,908, (Apr. 23, 1929). The copy sheet is provided on the top side with a layer of color suitable for taking up the script and on the back side is a layer of coloring which can be written upon. The purpose of the invention is to use as a carrier of the layer of coloring, transparent cellulose, such as viscose.—J. F. O.

Gummed Paper. Papeteries Navarre Societe Anonyme. Ger. pat. 504,496 (Jan. 26, 1929). The gummed paper is characterized in that at the usual temperatures it is insoluble in water. The adhesive material is composed of a mixture of gelatine, dextrine and an inert substance such as barium sulphate. For example, 15 kilograms of animal glue is intimately mixed in a warm condition with 150 kilograms of barium sulphate dissolved in 100 kilograms of water. To this is added 2.5 kilograms of clear dextrine dissolved in 10 kilograms of water, and this mass is spread on the paper in the ratio of 40 grams of adhesive to each square meter of 60 gram paper. The water is then removed by evaporation.—J. F. O.

Process and Device for the Manufacture of Wrapping Material. Leopold Rado. Ger. pat. 497,372. (Apr. 24, 1929). Three bands moving from rolls arranged along side of each other are connected together by means of a paste so that the center band, of a translucent film of cellulose free from fiber comes between the other two bands.—J. F. O.

Process for the Gluing Together of Webs of Paper and Metals. Leopold Rado, Ger. pat. 501,538 (Feb. 24, 1928). The adhesive material is sprayed on so as to give a great number of places for the metal and web of paper to adhere to.—J. F. O.

Process of Making Impregnated Sheets. Harold C. Cheetham assignor to Bakelite Corp. U. S. pat. 1,776,885 (Sept. 30, 1930). A reactive resin such as one formed from phenol and aldehyde is heated, together with a plasticizing agent such as diethyl or dibutyl oxalate, tartrate or phthalate, until it loses its initial fusability and solubility and becomes practically insoluble in water. The resultant material is mixed with fibrous material in the presence of water, formed into sheets, and the sheets are dried superposed and consolidated by hot pressing.—A. P.-C.

Coating the Interior of Cardboard Boxes. Edwin J. Schoettle. U. S. pat. 1,773,064 (Aug. 12, 1930). The inner surface of a cardboard container is treated with a film-forming size, such as potato starch and alum, containing a nonactinic dye substance, such as tartrazine and Ponceau R, in order to protect rubber goods or other contents of the box from deterioration.—A. P.-C.

Zinc Chloride Solutions for the Production of Vulcanized Fiber. I. G. Farbenindustrie A. G. Fr. pat. 684,557 (Nov. 7, 1929). Zinc chloride solutions used in the manufacture of vulcanized fiber are freed from calcium chloride by adding zinc sulphate before or during evaporation; the solutions are freed from precipitated calcium sulphate and evaporated.—A. P.-C.

Plastic Composition. George B. Stryker, Jr., Assignor to the Weatherproof Products. Co. U. S. pat. 1,786,462 (Dec. 30, 1930). A heat insulating material is made from 67 to 73% (by weight) of comminuted cotton stalk fiber, 25% finely comminuted paper waste and 2 to 8% of dissolved rosin.—A. P.-C.

Impregnating Paper with Synthetic Resins. Manufacture de Machines Auxiliaires por l'Electricite et l'Industrie and D. A. L. Texier. Eng. pat. 329,066 (Mar. 6, 1929). After the paper has been impregnated with a synthetic resin, the solvent is extracted and the resin is polymerized by subjecting the article to a gaseous atmosphere which will absorb the solvent, which is condensable at ordinary temperature and which has a high specific heat. As an example, dry steam is mentioned when an alcoholic solution of a phenol-formaldehyde condensation product has been used.—A. P.-C.

Paraffin Emulsions. The Agasote Millboard Co. Fr. pat. 684,048 (Oct. 29, 1929). Paraffin is emulsified with a soap made from mountan wax. The emulsion is used for waterproofing pasteboard, etc.—A. P.-C.

Waterproofing Fibrous Materials. Frederic Kueck. U. S. pat. 1,777,447 (Oct. 7, 1930). Pulp is saturated with an oil and grease free emulsion composed of an aqueous solution of rosin soap and a heat liquefied blown asphalt product, and the asphaltic product is released from suspension, as by the use of an acid or an acid salt.—A. P.-C.

Composition for Treating Cigaret Paper. W. E. Frith. Eng. pat. 331,079 (June 14, 1929). The paper is treated with a mixture of 50 parts of water, 45 parts of gum arabic and 5 parts of china clay (which may be colored) to prevent smoldering away of the cigaret and the dropping of red hot ash from it. The paper may be impregnated during manufacture.—A. P.-C.

Paper Carrying Ornamental of Protective Substances. I. G. Farbenindustrie A. G. Eng. pat. 331,707 (July 22, 1929). Coloring or loading materials, suspensions of fibers, etc. for safety paper, etc., are applied to the pulp on the paper machine wire at a point where no matting of the pulp has taken place.—A. P.-C.

Method of Saturating Roofing Felt. George P. Heppes assignor to The Patent and Licensing Corp. U. S. pat. 1,776,586 (Sept. 23, 1930). The sheet is immersed in a bath of hot saturating agent so that the latter penetrates substantially the whole thickness of the sheet and there remains an excess on the surface. This excess is removed except for a predetermined quantity equal to the amount which the sheet can absorb on cooling. The saturated sheet is then cooled so as to contract the hot saturant and catch the excess of molten saturant to be drawn into the sheet.—A. P.-C.

Composition for Waterproofing Paper. Charles S. Shelton. U. S. pat. 1,778,964, (Oct. 21, 1930). The composition is prepared from 12 parts of zinc oxide, 3 parts of lead oxide, 5 parts of dammar gum and 82 parts of a mixture of benzol and petrolic ether.—A. P.-C.

Process of Making Creped Paper Lined Insulating Material. Allen L. Spafford assignor to Wood Conversion Co. U. S. pat. 1,774,573 (Sept. 2, 1930).—A layer of adhesive is applied to one surface of a paper web, which is then passed over a roll with the coated surfaced in contact with the roll to cause it to adhere thereto. The paper is creped by stripping it from the roll by means of a doctor, and it is united to a suitable fibrous core by means of the adhesive previously applied for creping.—A. P.-C.

Cigarette Paper. Basile Seferiadis. Fr. pat. 684,879 (Jan. 29, 1929).—The process consists in incorporating with the stock at a suitable stage of manufacture, preferably in the last beater, a natural or artificial gum containing mellowing and sweetening principles, more particularly 3 to 5 per cent gum-mastic. The gum is macerated 24 hours in 8 times its weight of acetone and twice its weight of alcohol; the semi-viscous paste is poured into 5 volumes of water at 80 deg. C. containing 2 per cent of sugar on the weight of the stock. The solution is filtered, cooled, and added to the beater shortly before dropping the stock, and precipitated by means of alum or citric acid.—A.P.-C.

Waterproof Roofing Paper. The Flintkote Co. Belg. pat. 368,798 (May 31, 1930).—The paper is made on a cylinder machine and is impregnated by applying an asphalt emulsion to the underside of the sheet made on the first cylinder before it reaches the second cylinder where it joins the second sheet.—A.P.-C.

Sheet Material for Panelling, Etc. D. Sinclair. Eng. pat. 331,573 (April 2, 1929).—Sheet material such as Celotex formed by pressing or rolling bagasse or similar fibrous material is impregnated with shellac or artificial varnish, compressed to expell excess liquid and baked under pressure (suitably at about 200 degrees C. for 45 to 60 minutes). Material for suitable conducting material between two sheets of the impregnated board.—A.P.-C.

Emulsified Compositions for making Waterproof Sheets. Lester Krischbraun. U. S. pat. 1,781,645 (Nov. 11, 1930).—Pulp is mixed with a normally adhesive bituminous waterproofing material dispersed in an aqueous vehicle containing soap and rendered non-adhesive by incorporation with an agent such as colloidal clay in quantity less than would substantially impair the waterproofing properties of the bituminous waterproofing material. A sheet is formed from the mixture and is dried to cause the bituminous material to resume its adhesive condition and waterproof the fiber.—A.P.-C.

Roofing and Process of Making the Same. Lowell F. Lindley. U. S. pat. 1,779,175 (Oct. 21, 1930).—A heavy felt is impregnated with an asphaltic waterproof compound that is stiff at summer sun temperature. The impregnated felt is coated with a layer of adhesive asphalt into which grit is then embedded. The sheet is next corrugated, and finally cut transversely.—A.P.-C.

Method of Saturating Roofing Felt. Lester Kirschbraun assignor to The Patent and Licensing Corp. U. S. pat. 1,776,590 (Sept. 23, 1930).—The felt is wetted with liquefied low-melting asphalt; a high-melting asphalt is applied to the surface of the sheet while it is hot; the sheet is allowed to cool, immersed in molten high-melting asphalt, and finally allowed to cool with excess asphalt on the surface.—A.P.-C.

Backing for Stencil Sheet. Shinjiro Horii. U. S. pat. 1,780,391 (Nov. 4, 1930).—A backing sheet for a dry-process stencil sheet is formed of a firm stiff paper treated with a coating composition including a non-drying oil and a hardening material such as wax, copal or ester gum.—A.P.-C.

Process of Marking Carbon Paper. Harold W. A. Dixon assignor to Columbia Ribbon and Carbon Manufacturing Co. U. S. pat. 1,780,007 (Oct. 28, 1930).—The desired mark is applied to the supporting paper or tissue in the alkali solution such as alcoholic solution of sodium or potassium hydroxide and the paper tissue is thereafter coated with carbon ink.—A.P.-C.

Stencil Sheet. Ernest E. Novothy. U. S. pat. 1,776,368 (Sept. 23, 1930).—A coating is used comprising of cellulose ester such as cellulose nitrate and ethyl oleate. Other alkayl oleates, carnauba wax, etc., may be added.—A.P.-C.

Semi-Parchment Paper. Establissements Dalle Freres et Lecomte. Fr. pat. 686,276 (July 24, 1930).—Papers which could not stand the regular parchmentizing treatment with sulphuric acid of 55 to 57 degrees Baume are treated with a somewhat weaker acid (45 to 55 degrees Baume), depending on the nature of the paper. This results in a partial parchmentization which increases the strength about 30 to 50 per cent and produces an appreciable, though incomplete, waterproofing effect.—A.P.-C.

Colored or Tinted Parchment Paper. Robert I. Cowen. U. S. pat. 1,780,616 (Nov. 4, 1930).—The formed paper is passed through an acid bath in which is dissolved a dye, and the paper is then passed through a water bath to wash out the acid from the paper.—A.P.-C.

Waterproofed Roofing Paper. The Flintkote Co. Belg. pat. 368,801 (May 31, 1930).—The paper is waterproofed by means of an aqueous asphalt-clay emulsion, which is added to the stock prior to the formation of the paper machine.—A.P.-C.

Apparatus for Producing Two-Toned Glazed Paper. Edward W. Hague. U. S. pat. 1,775,901 (Sept. 16, 1930).—The paper is passed over an engraved impression roll partly immersed in a dye solution to apply the dye solution to part of one side of the paper, and then over a smooth roll partly immersed in the same dye solution to apply a coating of dye solution to the entire solution. The paper passes over a smooth roll which applies a coating of a transparent dye-protecting and finishing solution.—A.P.-C.

Composite Sheet Material. Wolff and Co. E. Czapek and R. Weingand. Belg. pat. 328,269 (Oct. 19, 1928).—A sheet for packing or ornamental purposes comprises a film of regenerated cellulose united by an adhesive such as gelatin or albumin to one or more sheets of different material such as paper, etc.—A.P.-C.

Crepe Paper. Zellstoff Papier 10, No. 12: 873. (Dec. 1930).—Notes on its manufacture and use. The crux in the manufacture of crepe paper is the doctor which has to be made and placed exactly correct.—J.F.O.

Waxed Sized Paper for Printing. B. Wieger. Zellstoff Papier 10, No. 12: 874-875 (Dec., 1930).—In order to increase the speed of the printing presses, a paper must be made which will take up the ink and dry quicker than is the case with ordinary rosin paper. It is claimed that paper sized with wax has this property of allowing the ink to dry quickly. About one half per cent of wax is all that is necessary and this small cost is more than offset in the better paper produced for printing.—J.F.O.

The Importance of the Cooling and Moistening of Paper. Karl Baudisch, Neuss, Germany. Wochbl Papierfabr. 61, No. 48: 1545-1550 (Nov. 29, 1930).—When a uniform satin is desired, the moistened paper must be cooled before it goes through the stacks. With the new high speed machine it often happens that the cooling cylinder is not of sufficient size and often it does more harm than good.—J.F.O.

Properties and Utilization of Cellulose. Zellstoff Papier 10. No. 12: 860-862 (Dec., 1930).—The quality of the paper is dependent to a great extent upon the chemical properties of the pulp. Since cellulose is a colloid, the water taken up upon beating is considered as physically bound and hence hydration is physical phenomenon. Pulp used in the manufacture of artificial silk must have a low ash content. The influences of hemicellulose and pentosane, etc. are discussed.—J.F.O.

Machine for the Manufacture of Corrugated Paper, Glued on Two Sides and of a Double Layer of the Corrugated Paper. Aktiengesellshaft fur Cartonnagenindustrie, Dresden, Ger. pat. 495,499 (Feb. 24, 1929).—Two corrugated paper sheets, each glued on one side, are simultaneously formed under pressure by passing the sheet through heated profile rolls and smooth heating rolls. Both sheets of the corrugated paper are continuously held together firmly and in this manner they are led around a smooth heating cylinder and as the unrolling gears act, the sheets unroll and forms a two sided glued corrugated paper of two layers of paper. The machine for carrying out this process is characterized in that, the pair of profile rolls can be set axially during the forming of the corrugations.—J.F.O.

Process for the Waterproofing of a Sheet of Paper, Board, Etc. by Progressive Impregnation with Solutions of Metallic Salts and Fatty Soaps. Richard Jeschke. Ger. pat. 498,478 (Sept. 30, 1930).—The pre-impregnation occurs with a solution of chlorides and basic oxides, the after impregnation with a fatty acid alkali.—J.F.O.

Process for Testing of Impregnated Paper, Sheets and Other Materials; with Regard to the Uniformity of Impregnation, Kurt Stantien. Ger. pat. 497,858 (Dec. 13, 1927).—Such chemicals are added to the impregnation solution or to the substance to be impregnated, which show a good appearance in suitable direct or transmitted fluorescence. The paper so prepared is tested with a suitable photo chemical acting light.—J.F.O.

Process for Coating Roofing Paper with Aluminum Powder. Ernest Tauber. Ger. pat. 496,193 (Oct. 25, 1928).—The aluminum powder is mixed with a granular material such as sand, before it is strewn on the roofing paper.—J.F.O.

Wax and Paraffine Paper. Togo. Wochbl Papierfabr. 61, No. 35: 1129-1131 (Aug. 30, 1930).—A general review of the production of wax and paraffin paper, beginning with the suitability of the raw materials to the waxing and the cooling cylinders. A few patents concerning wax paper are described.—J.F.O.

Cable Paper, the Raw Materials Required, its Manufacture, the Chemicals used and the Technical Properties of the Paper. Reuss. Zellstoff Papier. 10, No. 6: 399 (June, 1930).—The rigid requirements of cable paper, high strength and flexibility, withstand high electrical tension, free from acids, etc. necessitates strict supervision over its entire manufacture, sulphite pulp is principally used as the raw material. The stock must be well beaten and yet not too much parchmentized.—J.F.O.

Dextrose in Pergamyn and Parchment Substitutes. Hans Wrede. Papierfabr. 28, No. 25A: 118 (June, 1930).—Dextrose added to the beater increases hydration and hastens the elimination of the water on the wire, hence the possibility of faster machines. The quality of the paper is appreciably better. Three grams of dextrose per 100 kilograms of pulp produces an excellent sheet of basis weight, 40 grams per square meter. When dextrose is used in moistening, before the super calender, a much better and smoother finish is obtained than if the more expensive glycerine is used. A 10 to 25 per cent solution of dextrose is used according to the kind of paper being made and the finish desired. And the dextrose can be added by a brush or by a moistening machine, the same as water. The properties of dextrose are given. If a soft sheet is wanted, dextrose obtains this property.—J.F.O.

Process and Apparatus for the Production of Copying Surfaces with the use of a Carbon Paper of the Same Copying Color. Transskrit A. G. Zurich. Nor. pat. 47,951 (Nov. 25, 1927).—The color used in the hardening so that it adheres on the surface of the color roll and is only viscose enough to safely cover the paper.—J.F.O.

Arrangement for the Manufacture of Uniform, Dense Pergament Free from Pores. Konigsberger Zellstoff-Fabriken und Chemische Werke. Ger. pat. 501,188 (April 18, 1928).—The arrangement consists of a parchmentizing bath, with a doctor, rolls a pair of brushes for the mechanical treatment of the raw sheet.—J.F.O.

Process for the Pasting Together of Metal and Sheets of Paper. Leopold Rado. Ger. pat. 501,538 (Feb. 24, 1928). The pasting material is added in a fine spray so that there are numerous points where a union between the metal and the sheet of paper takes place.—J.F.O.

POWER PLANT SECTION

REDUCING POWER COSTS THROUGH UNIT TREATMENT

Conducted by **Reginald Trautschold Consulting Engineer**

Boilers and Steam Generators*

II—Trends and Achievements

Back in the days when water tube boilers were only commencing to be introduced generally, say about 1890, most industrial power plants were still equipped with horizontal and vertical fire tube boilers. Steam pressures of from 125 to 150 ponuds per square inch were commonly employed and the capacity of boiler units rarely exceeded 10,000 pounds of steam per hour. The fire tube boilers seldom contained more than 1,500 to 2,000 square feet of heating surface and such water tube boilers as were then in use probably not in excess of 25 per cent more.

This might almost be taken as applying to some of the older paper mills at the present time, despite the fact that ten years later, at the beginning of the present century, 150 pounds per square inch became the usual power plant steam pressure and boiler units containing up to 2,500 square feet of heating surface had a steaming capacity up to about 25,000 or 30,000 pounds of steam per hour.

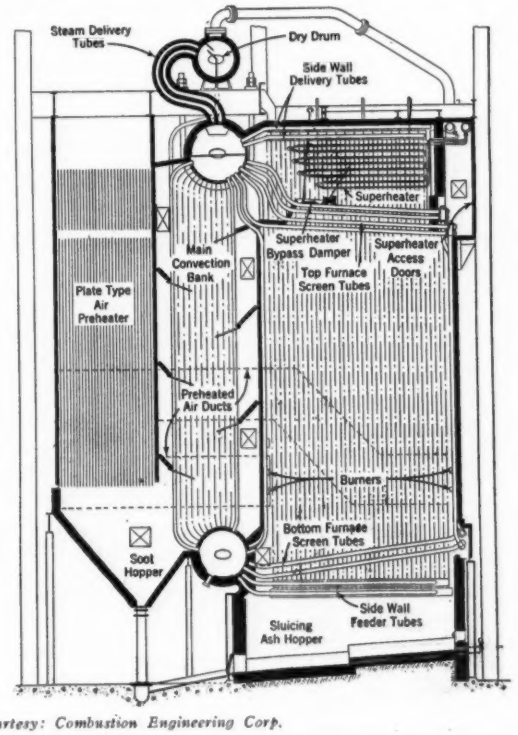
During the last three decades, from 1900 to 1930, the rate of approach to the present day high efficiency, high pressure, high temperature and large capacity steam generator has been considerably more rapid. The steaming capacity of installed units has increased almost ten fold, so far as paper mill steam plants are concerned. The the steam pressure increase has been even more marked. It may also be noted that since the beginning of the century, the steam supply has been charged with more and more superheat. Where in 1910, it was unusual to superheat the steam in the power plants of the paper making industry and even when experiments commenced to be made a few years later, the elevation in steam temperature was in excess of 50 degrees Fahrenheit only in a few exceptional instances. In 1920, however, steam carrying superheat of from 75 to 150 degrees began to be recognized as desirable even in pulp and paper mill services and today the superheating of steam 200 and 300 degrees has proven its worth in a number of mill plants.

TRENDS IN STEAM GENERATOR DEVELOPMENT—1910 to 1930

	1910	1920	1930
Capacity:			
Lbs. steam per hr.....	50,000-80,000	100,000-200,000	150,000-500,000
Heating surface:			
Sq. ft. per boiler	3,500-5,000	7,500-12,500	15,000-30,000
Steam pressure:			
Lbs. per sq. in.....	180-200	250-300	450-1,200+
Steam temperature:			
Deg. Fahrenheit	400-450	500-600	700-800
Efficiency, per cent.....	78	89	92

The gain, so far as the cost of operating the steam plant is concerned, is indicated by the increase in steam generating efficiency which has accompanied these radical changes in steam generator characteristics. In the days of hand firing, it was only under the most favorable of conditions that a boiler efficiency of as high as 70 per cent. was realized. Early stoker practice elevated the record to 72 or 73 per cent, but it was not until about 1910 that efficiencies of the order of 77 or 78 per cent were attained. Five years later, a few boilers were generating steam at an efficiency of 83 per cent, or a little more, and by 1920 the high mark of 89 per cent was occasionally touched. The past decade has seen improvements to well over 91 or 92 per cent with stoker and pulverized coal fired units.

These very decided increases in the capacity and economy of steam generators have unquestionably been due in large part to important developments in fuel burning



Courtesy: Combustion Engineering Corp.

FIG. 1
Sectional side elevation of new vertical, water-tube steam generator.

* For previous discussions on boilers and steam generators see PAPER TRADE JOURNAL, June 28, 1928, Dec. 12, 1929 and July 9, 1931.

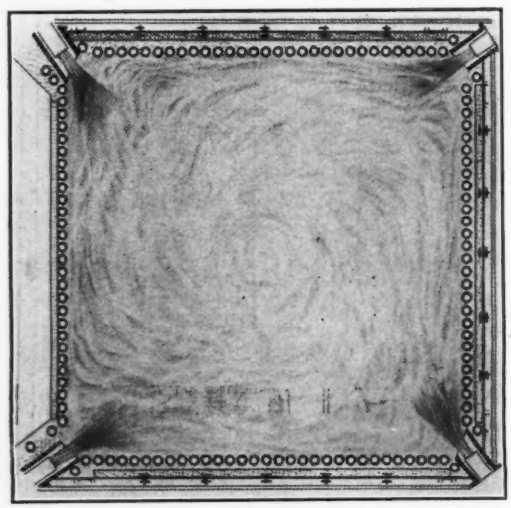
equipment, combustion control apparatus and improved methods of conditioning water. As stated in the discussion which appeared in these pages July 9th, the modern steam generator is very much more than a steam boiler, being in fact a compact assemblage of apparatus designed to lower the cost of steam by elevating the effectiveness of the boiler furnace.

Boiler Capacity and Effectiveness

When hand firing of boiler furnaces was still quite general, it was customary to provide from 1 to 2 cubic feet of furnace volume for each 10 square feet of heating surface. As the use of automatic stoker firing became more general, this was increased to 2 to 4 cubic feet per nominal horsepower capacity and it became apparent that the capacity of a steam generating unit does not depend so much upon the heating surface (water) of a boiler as upon the fuel burning capacity of the furnace. This fact is now generally appreciated and it has become customary to rate steam generators in pounds of steam generated per hour at peak load, a recognition that the capacity of a boiler is governed, not alone by its heating surface, but by the fuel burning capacity of its furnace.

Fair size steam generators fired by modern automatic stokers, at present usually of the multiple retort, underfed variety, now burn from 35 to 45 pounds of coal per hour per square foot under ordinary steaming conditions and during periods of peak load upward of 75 pounds. Like effectiveness is secured with boiler units using pulverized coal systems of combustion. Such rates of fuel consumption necessitate, obviously, far more voluminous boiler furnaces than were required when from 15 to 20 pounds of fuel consumed per hour per square foot sufficed for all normal steam demands. This extra space has been provided by making the modern boiler unit much higher.

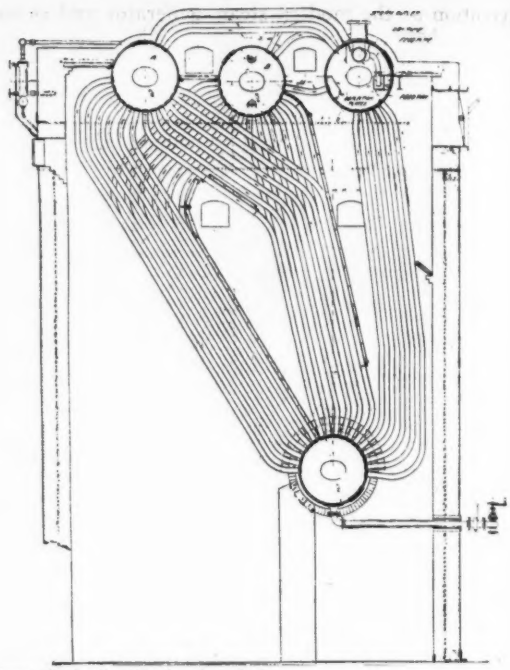
Where the early horizontal water tube boilers were proportioned so that their front headers were 5 or 6 feet above the boiler room floor, this dimension for modern boilers of similar construction has been increased four or five fold, the front header of a modern horizontal steam generator being often considerably more than 20 feet above the floor level. In the newer vertical type, water-tube steam generators, the front drum may be close to 50 feet above the floor, with a steam header located some 7 or 8 feet higher. Such constructions impose far greater loads on the boiler settings, so that the furnace linings, subjected to much higher temperatures as well as greater loads, have also passed through important stages of development. Special compositions for solid refractory walls have been evolved, air-cooled refractory walls and, more recently, water walls for enclosing either part or all of the boiler furnace.



Courtesy: Combustion Engineering Corp.

FIG. 2

Plan view of pulverized coal boiler furnace showing cyclonic action of turbulence resulting from corner-tengential firing.



Courtesy: Combustion Engineering Corp.

FIG. 3

Arrangement of tubes in new four drum, vertical, bent tube boiler unit.

Combustion Control

The old methods of combustion control which placed the responsibility for keeping the fuel bed of the fires in proper condition upon the fireman: first, by manipulating damper regulators in accordance with the air requirements for satisfactory combustion; then, by regulating induced or forced draft fans and controlling the air supply by a damper in the smoke flue; and later, by adjusting damper position and fan speeds to variations in furnace gas pressure: are no longer practiced. As the mechanical feeding of fuel, by automatic stokers and coal pulverizer mills, has come into general use, apparatus has been devised to regulate both the air and fuel supplies automatically, by changing either the rates of both supplies or by modifying the air supply only, thereby alternating the furnace pressure correspondingly and indirectly the fuel supply as well.

During the past few years, several efficient systems of automatic combustion control have been developed, which are adaptable to all classes of fuel and operating conditions. These, noteworthy as they are, cannot well be enlarged upon in a general discussion on steam generator development of this character, but it may be stated that by their use the functions of the boiler and its related equipment, the full line of present day steam generator accessories and auxiliaries, are adjusted automatically so as to generate and maintain efficiently the steam pressure at the required steaming rate.

Recent developments in fuel burning equipment may also be looked upon as a separate, though closely related, question leading up to the achievements exemplified in

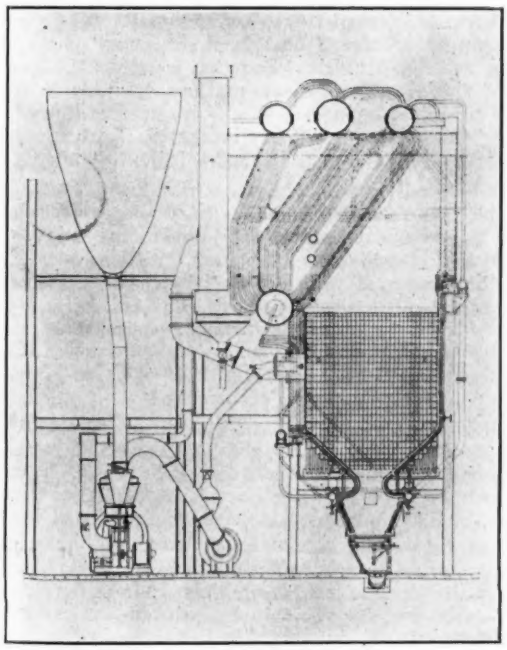
the evolution of the modern steam generator and as such they can be better presented in an article devoted to featuring modern fuel burning methods. Much the same situation characterizes the great advance made in water conditioning, the topic which will be the subject of the next discussion in these columns.

Modern Steam Generators

The modern steam generator, as an integral assemblage, can be best described by looking at the construction of one of the newer, approved units of a form which clearly indicates the arrangement in the field of steam generation, an achievement to which recent trends in the power plant field have plainly pointed. An excellent example of just such construction is that shown in the sectional view of a new vertical water-tube boiler assemblage.

This distinctive construction affords a clear view of the commodious furnace arrangement, particularly as the unit is one which burns powdered coal and requires no grates or other supporting structure for the fuel bed. This is not to be interpreted, however, as an indication that a steam generator fired on pulverized fuel is necessarily more efficient or cheaper to operate than one burning its fuel on a modern stoker or employing some other approved method of combustion, but simply that the absence of fuel burning equipment in the boiler furnace does make other constructional details stand out.

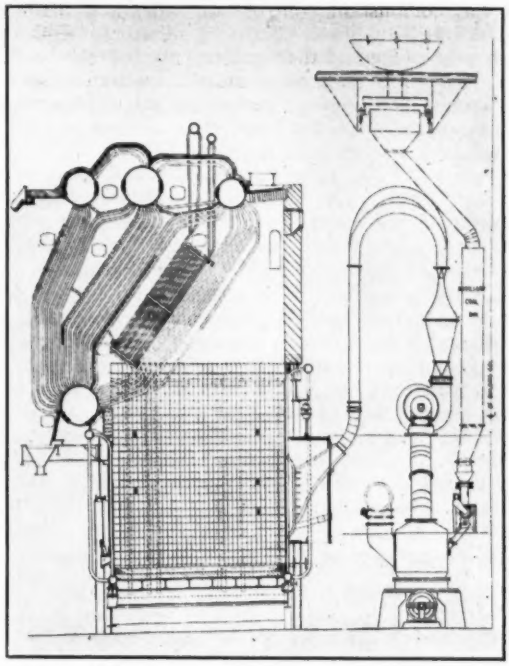
In this particular type of steam boiler, the furnace is completely surrounded by water walls, each wall composed of a solid row of tubes with only sufficient clearance between them for constructional requirements, and an arrangement of corner firing is resorted to which produces an intense degree of turbulence and extremely high rates of combustion. Incidentally, the side wall tubes are rolled into twin headers which are joined to the top and bottom drums by a large number of bent tubes. The front wall tubes are connected to the boiler drums in a somewhat similar manner, the connecting tubes being indicated in the illustration as top furnace and bottom furnace screen tubes, while the back wall tubes are connected into the drums direct.



Courtesy: Babcock & Wilcox Co.

FIG. 4

Sectional side elevation of steam generator at the plant of Jno. H. Heald Co., Lynchburg, Va.



Courtesy: Babcock & Wilcox Co.

FIG. 5

Arrangement of steam generator serving the Munising Paper Co., Munising, Mich.

These exposed, bare-tube wall surfaces surrounding the furnace absorb heat at a very rapid rate, the turbulent condition of the furnace serving to add speed to the heat transfer. The turbulence also causes a constant change in the strata of hot gases in contact with the wall surfaces, so that a high rate of heat absorption is effected by convection as well as by radiation. All of which, the turbulent condition of the furnace and the rapid absorption of heat by all wall surfaces, makes possible a very high release per cubic foot of furnace volume.

An excellent location for the superheater tubes is provided above the top furnace screen tubes and a by-pass damper is supplied by which the degree of superheat with which the steam becomes charged may be controlled and adjusted over a considerable range. Located immediately following the superheater is the main bank of convection tubes, an arrangement which is held to possess decided advantages. These convection tubes reduce the temperature of the products of combustion before the gases enter the plate type air preheater incorporated in the assemblage and, at the same tme, provide liberal capacity for the passage of the water returned to the upper drum through the furnace wall tubes.

Relatively little steam is formed in the convection bank of tubes, almost all of the evaporation of water taking place in the water walls enclosing the combustion chamber, or furnace, and in water walls enclosing the combustion chamber, or furnace, and in the upper and bottom furnace screen tubes, heating surfaces which are exposed to the radiant heat of the furnace. The functioning of the convection bank of tubes in this distinctive, vertical, water-tube boiler construction is comparable to that of the rear bank of tubes in a vertical bent tube type of boiler,

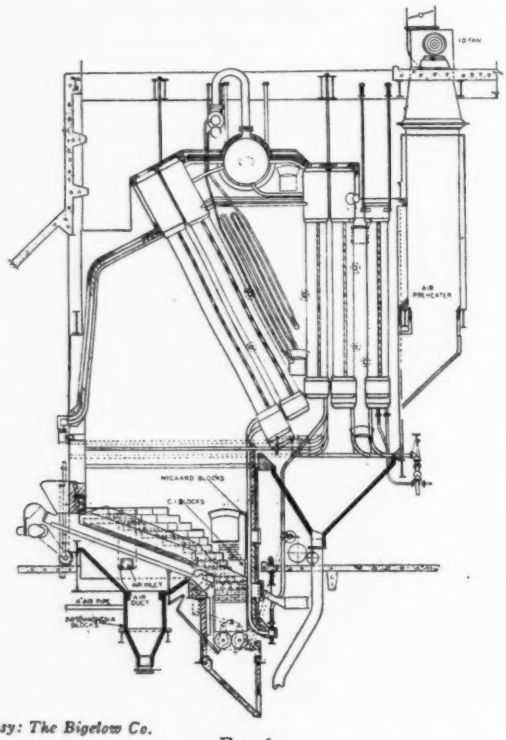
which, incidentally, is a construction which is well adapted for inclusion in a modern steam generator assemblage.

A new four drum boiler construction of this variety, designed especially for incorporation in modern steam generator assemblages, is illustrated and a noteworthy feature of the arrangement is that every other section of tubes in the front bank is connected to the middle drum and every other section of the second bank of tubes is connected to the front drum. The third, or rear, bank of tubes connects the rear and lower drums and provides the passage to the bottom drum for the water returned to the rear drum from the front and middle drums.

It is in the two tube systems connecting the lower drum with the front and middle drums respectively that the work of steam liberation is chiefly consummated, which gives the unit an advantage in steam volume above the water line and additional water surface for steam liberation, as compared with the more usual boiler constructions where most of the steam liberation is done in the front drum. An increased steam liberating area and about equal division of work of the first bank tubes between the two drums result in a more even water level and dryer steam at all ratings.

Ability to Meet Exacting Steam Demands

The more common arrangements of bent tube boilers are also reputed to possess marked ability to meet the fluctuating steam demands of the paper mill, to be very reliable, and to be extremely economical to operate. They have been installed in the new steam plant of the John H. Heald Company at Lynchburg, Va., where three new steam generators, each with a maximum steaming capacity at 282 per cent boiler rating of 90,000 pounds per hour, economically meet the steam demands of the mills. Each steam generator unit contains 10,436 square feet of heating surface and generates steam carrying 103 degrees of superheat at a pressure of 325 pounds per square inch.



Courtesy: The Bigelow Co.

FIG. 6

400-lb. stoker fired steam generator serving the New Haven Pulp & Board Co., New Haven, Conn.

A direct-fired system of powdered coal burning is used, employing two burners per boiler, and protecting water walls of somewhat over 1,000 square feet total area enclose each of the boiler furnaces up to the level of the lower boiler drum. This arrangement and the compactness of the assemblage is well brought out in the accompanying sectional view of the installation.

The steam generating units installed in the Middletown, O., boiler plant of the Paul A. Sorg Paper Company, also three in number, are quite similar, so far as the general arrangement is concerned, although the units are of smaller capacity. The heating surfaces of the individual assemblages measure only 5,790 square feet in area. Steam is generated, however, at a pressure of 415 pounds per square inch and is charged at 300 per cent boiler rating with 250 degrees of superheat. Each boiler is fired by a single forced-draft burner and at maximum steaming rate delivers 75,000 pounds per hour. The water walls, which also extend only up to the level of the lower boiler drum, are of slightly over 700 square feet in area.

The operating results secured with these steam generators and the substantial savings effected by them are the considerations of chief interest, however, and these are noteworthy. Steam, under normal operating conditions, has been produced at a net expense of approximately 27½ cents per 1,000 pounds. This cost, which represents one of the best records ever attained under normal operating conditions in any power plant, includes all expenditure for fuel, labor, maintenance, depreciation and insurance, as well as the burdens of amortization, interest and taxes.

How really profitable this installation has proved may be gathered from the fact that the first year's operation of the plant showed a saving of approximately 35 per cent of the initial capital investment. This investment covered the cost of two of the steam generator assemblages, the third not having been installed at that time, and the building, coal handling equipment, etc. for the completed installation of the three steam generators.

Still another installation of a modern steam generator unit burning powdered coal, well deserving of mention, is that at The Munising Paper Company at Munising, Mich. This is a very recent installation and is especially noteworthy for the reason that it is the first steam generator installation serving an industrial plant where the ash is tapped off from the furnace in liquid form.

This method of ash removal, which has proved highly desirable in a number of public-utility and central station plants, possesses a number of outstanding advantages. One of the most important of these is that a considerably lower building will suffice in which to house the steam generator than if the ashes are collected in a hopper shaped receptacle under the furnace. As a result, a considerably smaller investment is entailed for a suitable boiler house.

The bottom of the boiler furnace in the installations of this kind is flat, making possible a more efficient utilization of building space, since the boiler assemblage can be set a good deal lower, no provisions having to be made for ash hoppers or other equipment below the boiler room floor. Smaller furnaces, also, may be employed, on account of the higher rate of heat liberation that can be secured, and this means less water wall surface and fewer water wall headers. Ash handling equipment, likewise, is less expensive, for not only are ash hoppers and grates eliminated, but ash in granular form can be easily and cheaply pumped to a dump through temporarily laid piping.

In addition to the foregoing reductions in the line of in-

vestment costs, due to possible savings in building height, elimination of certain accessories and somewhat cheaper equipment, higher efficiencies are attained. Such betterment is due in part to the fact that a hot bottom is maintained at all rates of steam generation. Less ashpit carbon losses are contracted, since the flat furnace bottom affords a target wall for the burners, which when so directed insure the complete combustion of any combustible which might otherwise be rejected with the ash. The hot bottom also permits of greater turbulence, reducing the amount of excess air required, and the leakage of air through the furnace bottom is minimized. All of which is conducive to the maintenance of a higher furnace temperature in the combustion zone, with more efficient absorption of radiant heat by the furnace walls.

Another of the more important advantages is that the intense heat developed in the furnace removes many of the usual restrictions in the selection of steaming coals. The low fusing point of ash is not a problem in ash removal and cheap grade fuels can be burned with no restrictions in respect to boiler capacity. Less operating labor is required, since there is no call for barring hopper slopes or for breaking masses of slag and there is no fouling of boiler and superheater tubes by reason of the use of slag screens.

Installation at New Haven Pulp and Board

Interesting and pertinent as are these various installations of steam generators burning pulverized coal, however, as depictions of perfected designs in the light of present day knowledge, it will also be of interest to examine the salient points in respect to a recent and highly efficient installation of a modern stoker fired steam generator assemblage. Such a steam generating unit was placed in service at the New Haven Pulp & Board Company about two years ago, the incorporated boiler unit being of the semi-vertical (water-tube) variety with integral economizer, superheater and air preheater of the flat plate type.

From the side elevation, cross sectional view presented of this steam generator, much the same simple and logical arrangement which distinguishes a well designed assemblage of related and interpendent equipment is apparent as characterized the various steam generator assemblages burning powdered coal. The underfeed stoker equipment does not encroach to any great extent upon the furnace volume and the boiler setting extends to the fan floor some 44 feet above, on which both the induced and forced draft fans are located.

The induced draft fan discharges direct to the stack, while the force draft fan takes air from the upper part of the boiler room, at a temperature of around 115 degrees, and forces it into the air preheater. This latter unit has a heating surface area of about 6,600 square feet and increases the temperature of the air passed through it by 100 to 125 degrees, at the same time reducing the temperature of the exhaust gases from around 440 to something like 275 degrees.

The steam generator, rated as a 760-horsepower assemblage, generates steam at 400 pounds pressure, with 160 degrees of superheat at 250 per cent rating, and was designed for a maximum steam output of 84,000 pounds per hour, entailing a combustion rate of approximately 40 pounds of New River slack coal (14,000 B.t.u. per lb.) per square foot of stoker surface per hour. This is equivalent to a liberation of 18,000 B.t.u. per cubic foot of furnace volume, or slightly more than 5 pounds of coal per 1,000 pounds of steam. This excellent performance well supplements the other marked economies which the two-year old steam generator has introduced: namely, a reduction in boiler crew previously required of 60 per cent and a like cut in the amount of coal consumed.

Pioneering in the Use of Superheated Steam

From all the foregoing, it is very evident that the trend in the boiler plants serving the paper making industry has been continually toward the use of much larger steam generators, the generation of steam at much higher pressure than was formerly deemed desirable and, as clearly indicated in every instance cited, the utilization of steam charged with more or less superheat. Consequently, a few remarks concerning what may very properly be termed the introduction in the use of superheated steam to the paper making industry can appropriately be presented in concluding the present discussion.

One of the first, if not the very first, of the paper mills to undertake the superheating of its steam supply was that of the Fitchburg Paper Company. Over twenty years ago, that is to say in 1910, six of the 175 horsepower horizontal return tube boilers operated by that concern, boilers which were considered highly efficient and desirable in those days, were equipped with convection type superheaters. The results secured were apparently quite satisfactory, for ten years later three more boilers of the same variety, though only 150 horsepower units, were similarly equipped.

When, in 1926, a new boiler plant was designed, the plans called for two large modern steam generators to replace several batteries of small horizontal return tube boilers located in a number of scattered boiler rooms. The first of these large new units was placed in service in 1927, replacing sixteen of the smaller boilers, a 1,008 horsepower assemblage burning pulverized coal and generating steam at a working pressure of 250 pounds and laden with 150 degrees of superheat.

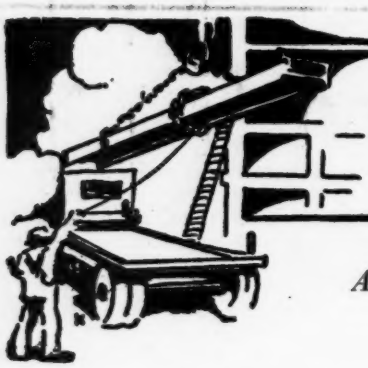
The second of the large units, somewhat bigger, being rated at 1,083 horsepower, was placed in operation last year and this is also provided with an efficient convection type superheater, as well as with a fuel economizer having over 5,000 square feet of surface for heating the boiler feed water. In this latest steam generator, 100,000 pounds of steam, carrying 150 degrees of superheat, can be generated per hour at a pressure of 225 pounds per square inch, while the economizer raises the temperature of the feed to 320 degrees at high ratings.

For twenty years, the use of superheated steam has proved a well paying practice for this mill, a record equaled in really very few industrial plants. This, perhaps, is the most conclusive evidence that can be advanced that the trends and achievements of the past decade in respect to types of power plants serving the more progressive pulp and paper mills has been sound and responsible for much of the economy in paper making that has been effected. Fuel, water, labor, equipment and overhead costs have increased, but the cost of steam has come down.

(*To be continued*)

Swedish News Print Production

WASHINGTON, D. C., July 29, 1931.—Commercial Attache, M. H. Lund, at Oslo, reports that Swedish news print production during May was approximately 70 per cent of capacity. Shipments are mostly on old contracts and if the present rate of operation is maintained the mills have disposed of 90 per cent of their 1931 production. Contracts for next year are reported as being closed at slight concessions. Kraft paper is enjoying a somewhat better demand from British buyers, although sales to usual outlets for wrapping and bag purposes have been very disappointing, he states.



CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

North Wilbraham, Mass.—The Collins Manufacturing Company, Suffolk street, Holyoke, Mass., has plans nearing completion for the erection of a new power plant at its mill at North Wilbraham, consisting of a one-story unit, reported to cost about $50,000, with equipment. It is understood that bids will soon be asked on general contract. McClintock & Craig, 458 Bridge street, Springfield, Mass., are architects and engineers.

Oregon City, Ore.—The Hawley Pulp and Paper Company is said to be planning the early rebuilding of portion of storage and distributing plant recently destroyed by fire with loss reported in excess of $200,000, including building and stock.

Richwood, W. Va.—The Cherry River Paper Company, Richwood, has plans in progress for the construction of a power dam across Little Laurel Creek, to be used for operating service at local pulp and paper mill. It is expected to proceed with the project at an early date. Sanderson & Porter, 52 William street, New York, are consulting engineers. Main offices are in the Pennsylvania Building, Philadelphia, Pa.

Carnegie, Pa.—The Superior Paper Products Company, Carnegie, has awarded a general contract to the A. A. Lane Construction Company, 1869 East 55th street, Cleveland, Ohio, for construction of proposed new addition to plant, and will place superstructure under way at once. The structure will be one-story, 80x185 feet, reported to cost over $80,000, with equipment. It will be used for roll storage and other operating service. Braziell & Anderson, 309 Fourth avenue, Pittsburgh, Pa., are architects. C. J. Bausmann is president.

Holyoke, Mass.—The American Writing Paper Company, Holyoke, has arranged for the discontinuance of operation of its local Albion Division mill, heretofore given over to the production of medium grades of writing papers. This class of production will be distributed among the other mills of the company, and facilities provided where necessary. S. L. Willson is president.

Spokane, Wash.—In connection with its development plans for a new mill, the Pacific States Pulp and Paper Company, Hutton Building, Spokane, is reported planning the development of sodium sulphate deposits on the Government reservation near Monse, vicinity of Okanogan, Wash. The project includes the construction of a new mill unit to cost about $85,000, with equipment. Roy Rannels, engineer for the Pacific States company, is interested in the project.

St. Louis, Mo.—The Service Paper Box Company, care of Harry E. Sprage, 506 Olive street, recently organized by Mr. Sprage and associates, is said to be planning the early operation of a local plant for the manufacture of a line of paper boxes and containers. E. S. Hager and George D. Smith, both of St. Louis, are interested in the new organization.

Marrero, La.—The Celotex Company, Chicago, Ill., has completed plans for the operation of its plant at Marrero, near New Orleans, with natural gas as fuel. Heretofore the mill has used oil for such service. A three-year contract has been made with the Louisiana Power & Light Company, New Orleans, for the necessary fuel supply, which will be secured from the new natural gas pipe line of the utility company running from Monroe, La., to New Orleans and vicinity, and pipe lines will be extended to the Marrero plant. The estimated consumption during the period of the contract is placed at close to $700,000.

Buffalo, N. Y.—Workers engaged on an hourly rate basis at the local plant of the du Pont Cellophane Company, River road, have been placed on a five-day week schedule, and the mills will operate on that plant until further notice. The hourly rate will remain unchanged, and while workers will earn less owing to the reduction in weekly time, it is expected that it will be necessary to give employment to an increased working quota at an early date.

Indianapolis, Ind.—The American Paper Stock Company has taken out permits to wreck buildings at 326-28 West Market street, and is said to be planning to use the property for other purposes.

Charleston, W. Va.—The one-story paper storage plant of A. P. Silverstein & Sons, Dryden and Court streets, was damaged recently by fire. An official estimate of loss has not been announced. It is proposed to replace the loss.

Grafton, Vt.—In connection with its power holdings in the New England district, the International Paper and Power Company, New York, has secured permission to issue bonds in amount of $20,000,000 for the Grafton Power Company, a subsidiary interest, operating a hydro-electric generating plant at Fifteen-Mile Falls on the Connecticut River, vicinity of Monroe, N. H., and Barton, Vt. The proceeds will be used in part to defray cost of recent power developments of Grafton company, and for later expansion and improvements, including transmission line construction.

Milford, Pa.—Fire recently damaged a small building at the local plant of the Riegel Paper Corporation. An official estimate of loss has not been announced, but is reported as slight. The unit was used for storage service at the mill.

Toronto, Ont.—The International Lithographing Company, Ltd., recently organized as a subsidiary ot the Consolidated Lithographing Corporation, 1013 Grand street, Brooklyn, N. Y., and Lawson & Jones, Ltd., Ontario and London, England, has arranged for the establishment of a new plant at Toronto, for the production of paper labels, tags and kindred paper products. Machinery is being installed and unit will be placed in service soon.

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Super Calenders
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Embossing Calenders
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The Textile-Finishing Machinery Company
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CANTON, MASS.
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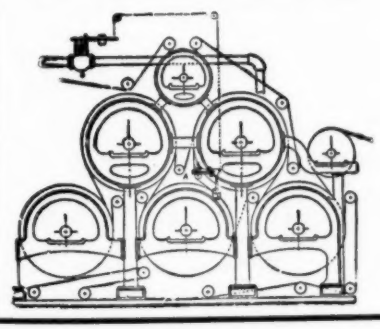

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W. F. PICKLES **Buckland, Conn.**

Imports of Paper and Paper Stock

(Continued from page 62)

BOSTON IMPORTS

WEEK ENDING AUGUST 1, 1931

E. J. Keller Co., Inc., C. Nelson, ——, 70 bls. bagging.

NEWPORT NEWS IMPORTS

WEEK ENDING AUGUST 1, 1931

Price & Pierce, Ltd., Argosy, Stockholm, 7,119 bls. sulphite, 904 tons.

PHILADELPHIA IMPORTS

WEEK ENDING AUGUST 1, 1931

——, Argosy, Kotka, 107 rolls news print.
——, Argosy, Kotka, 1,055 bls. sulphite, 205 tons.

Lagerloef Trading Co., Argosy, Kotka, 711 rolls wood pulp boards, 80 tons; 233 bls. pulp boards, 36 tons.

Lagerloef Trading Co., Argosy, Wiborg, 7,028 bls. sulphite, 1,209 tons; 2,231 bls. sulphate, 437 tons.

S. Birkenstein & Sons, Exminster, Valencia, 55 bls. rags.

J. Richardson & Co., Bristol City, Fowey, 349 tons, 5 cwt. china clay.

Atlantic National Bank, Bristol City, Fowey, 551 tons, 2 cwt. china clay.

Paper Makers Importing Co., Bristol City, Fowey, 789 tons, 4 cwt. china clay.

J. W. Higman & Co., Inc., Bristol City, Fowey, 29 tons, 6 cwt. china clay.

J. B. Moors & Co., Bristol City, Fowey, 544 tons china clay.

Cotton Products Co., Tai Shan, Kobe, 25 bls. rags.

J. M. Hagy Waste Works, Tai Shan, Kobe, 65 bls. rags.

H. W. T. Mali & Co., Tai Shan, Kobe, 50 bls. rags.

J. Anderson & Co., Lucia C, Trieste, 260 bls. wood pulp.

E. J. Keller Co. Inc., London Exchange, ——, 76 coils old rope.

PORTLAND IMPORTS

WEEK ENDING AUGUST 1, 1931

J. Richardson & Co., Bristol City, Fowey, 896 tons 5 cwt. china clay.

Paper Makers Importing Co., Bristol City, Fowey, 41 tons 2 cwt. china clay.

J. W. Higman & Co. Inc., Bristol City, Fowey, 448 tons 18 cwt. china clay.

J. B. Moors & Co., Bristol City, Fowey, 40 tons 19 cwt. china clay.

Boston Paper Market Quiet

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., August 3, 1931.—Normal summer quiet prevails in the wholesale paper market here, with vacations in order at the same time that some of the manufacturers are running their plants at less than capacity. Some of the wholesale dealers, however, report a fair demand, but no better than fair. The general sentiment is optimistic, however, with the usual Fall activity in prospect. One of the well known fine paper merchants says he is getting his share of what business there is, but that there is not enough to divide. The wrapping paper market is fair to quiet. There are many orders, but they are small, as a rule, making the total volume no larger than moderate. Specialties are estimated as up to the normal demand, with the usual interest in summer commodities.

Box board seems a little brighter, with more activity and more confidence among dealers. More inquiries are being received. There are indications of an even greater improvement in the demand for shoe cartons, with a proportionate need for boards for their manufacture. Dealers are looking for inquiries and orders for material for candy boxes this month. Board prices are unchanged.

Although paper stock has been in the doldrums so long that dealers had become rather pessimistic, a slight betterment is noted in some grades. No. 1 repacked old kraft is stronger, with the price marked up to 1.25 against a former quotation of 1.15. No. 1 mixed paper has advanced from a flat .16 to .20. Old newspapers are in greater demand, so that they have strengthened, but the value still remains at .25 to .30. No. 1 white sisal is in fair demand, but the price has not advanced.

To Close Albion Division

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., July 28, 1931.—Announcement was made Saturday by L. C. Reynolds, Comptroller of the American Writing Paper Inc. that the Albion Division of that Company would be closed down soon. This is in accord with a recent statement by Sidney L. Willson president of the Company who stated last week that one or two divisons would have to be closed probably until business improved. No plans for closing other than the Albion Division are announced. Extensive repairs are said to be planned as well as a new beater room. It is not known how long the division will be down but probably several weeks.

To Run Full Time at Fort Edward

[FROM OUR REGULAR CORRESPONDENT]

FORT EDWARD, N. Y., August 3, 1931.—Increased operations have been placed in effect at the local branch of the International Paper Company and plans call for full time weekly schedules. An improvement in the volume of orders is claimed to have resulted in the return to normal schedules. Until a few weeks ago the plant was running three and four days a week but last week the machines operated five days. The previous week witnessed a full time schedule and it is expected that from now on operations will be conducted on this basis.

Operations at the Corinth mill of the company are not expected to be hampered by a fire which originated this week in the upper grinding room. The blaze required a hard fight on the part of firemen but was extinguished before any great damage was done. Only recently the sulphite tower department was completely destroyed and it is now being rebuilt at a considerable cost.

To Sell Oswegatchie Paper Co.

[FROM OUR REGULAR CORRESPONDENT]

LOWVILLE, N. Y., August 3, 1931—A public auction of the property of the Oswegatchie Paper Company is scheduled to take place at the court house in this village on September 3 under the direction of Attorney Robert Wilcox as referee. The entire property consists of the paper mill, pulp mill, water power rights, machinery, tenement houses, railroad siding and a number of parcels of land, mostly timber holdings. The sale will be pursuant to a foreclosure judgment secured by the Watertown National Bank as trustee under two mortgages or deeds of trust amounting to about $1,500,000. The Oswegatchie Paper Company has not been in operation for the past two years and rumors at various times that the plant was to be reopened proved to be without foundation.

St. Lawrence Mill Resumes Output

After being closed for a week to permit of machinery repairs, full activities have been resumed at the plant of the St. Lawrence Paper Mills at Three Rivers, Que. The mill has a daily capacity of 500 tons of news print. While the entire output of the mill in 1928 was sold under contract, another contract operative for ten years beginning 1929, calls for the sale of 45,000 tons of news print a year.

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"HAFSLUND BEAR"
Bleached Sulphite

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protects your rolls and insures their delivery to your customer in perfect condition. They eliminate claims for damages.

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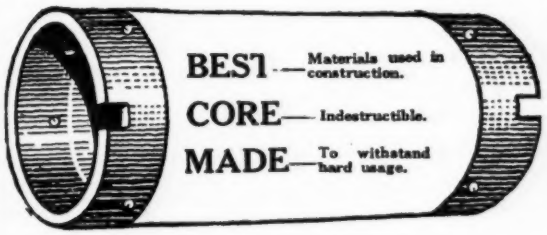

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SUPERCALENDERED
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230 Park Ave. New York
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503 Market St., San Francisco, Cal.
Sixth and Chestnut Sts., Philadelphia, Pa.

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, August 5, 1931.

While trading in the local paper market was light during the past week, the outlook for the future is fairly promising, as there are a number of inquiries around for future account, some of which should materialize into good orders. Sales forces of the local paper houses are organizing for a strenuous Autumn campaign and are generally optimistic.

Production of news print paper was maintained at approximately 57 per cent of rated capacity in the United States and Canada, according to information gathered by the News Print Service Bureau. Shipments are going forward at practically the same ratio. Demand for news print paper is mostly along seasonal lines. The price situation remains unchanged.

The paper board market was rather quiet. Offerings are quite sufficient to take care of future requirements. Prices continue weak. Fine paper sales are not up to the volume reported at this time last year, although the industry is in a sound position. Tissues are moving in fair volume. The coarse paper market is fairly active and wrapping paper is in normal request for the time of year.

Mechanical Pulp

Interest in the ground wood market is rather restricted at present. The Norwegian pulp mill workers strike has had little or no effect on the situation, although a settlement has not yet been reached. Demand for both the domestic and imported grades is only moderate. Prices are generally holding to formerly quoted levels.

Chemical Pulp

With production at home and abroad curtailed and stocks at Atlantic ports below normal, the chemical pulp market is a strong statistical position. Most of the business transacted during the past week was along routine lines and for immediate requirements. No further price changes have been reported.

Old Rope and Bagging

The old rope market is irregular. While demand for domestic old manila rope is fairly satisfactory, little interest is being shown in imported old manila rope. Small mixed rope continues dull. The bagging market is generally quiet. Scrap and roofing bagging, however, are arousing some interest. Prices are steady and unchanged, in most instances.

Rags

Conditions in the domestic rag market are practically unchanged. Cotton cuttings are only moderately active at present. Some improvement, however, was noticed in the demand for roofing grades. Mixed rags are going forward in fair volume. Prices remain unchanged, in most instances, although competition for desirable orders is keen.

Waste Paper

Although the strike of the employees of the New York waste paper packing plants continues and collections have fallen, the movement is not general. At the same time the paper stock market is decidedly firmer than of late. Board mill demand for No. 1 mixed paper is excellent. Old kraft machine compressed bales are also in good request.

Twine

The local twine market is fairly steady, although business is somewhat affected by the torrid weather and the midsummer holiday spirit. There are a number of inquiries around for future account and the immediate outlook is fairly encouraging. Prices are holding to schedule, in most instances.

Reach Wage Agreement With Union Bag

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., August 3, 1931—A conference between officials of the Union Bag and Paper Corporation and labor leaders this week resulted in a satisfactory agreement under which the employees at the local plant will receive a reduction in wages. The revision as proposed by the company and accepted by employees calls for a ten per cent cut for those receiving over 50 cents an hour and five per cent for workers receiving between 40 and 50 cents. Employees receiving less than 40 cents are not affected. Under the agreement it is understood also that the cost of producing paper will be reduced about 50 cents a ton.

At the time the wage and working agreement was signed by representatives of both sides last spring it was agreed by the local paper company not to revise wages providing the International organization refused to allow other paper corporations a reduction in wages. Since that time, however, it is claimed by officials here that other companies have been permitted to cut wages and that they are entitled to follow similar procedure. Among those attending the conference this week were Matthew J. Burns, president of the International Brotherhood of Papermakers; John P. Burke, president of the Pulp and Paper Mill Workers' Union; J. J. McAntee, organizer, representing the machinists' Union, and Edward McGinn, appearing for the firemen.

During the conference the union representatives declared that living costs remain entirely too high in some sections of the country and an investigation in many localities is being considered. They contend that there is no reason for the continued high cost of living and feel that a reduction in taxes, house rents and water rents in this section would aid considerable in relieving the difficulties now hampering the workers. These problems came in for much discussion during the conference and feeling in regard to the matter has arrived at a point where it is probable that a campaign will be inaugurated in an effort to bring about reductions in the existing scales. Business conditions at the local plant are said to be much better than for some time past and employes are being guaranteed steady work for the remainder of the year at least.

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STANDARD WET MACHINES

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PULP GRINDERS, THREE OR FOUR POCKET (Roller Bearings)

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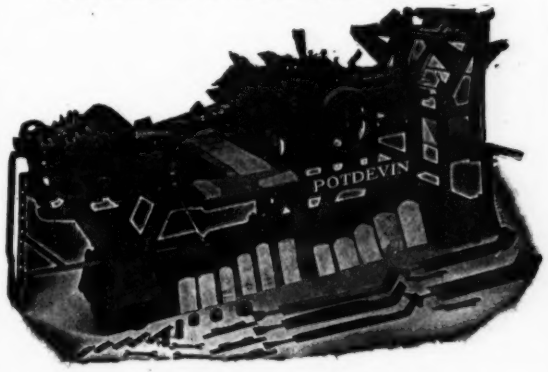
SPECIALTY BAG MACHINERY



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"M & W" CRISS CROSS SHOWER PIPES

"WILL NOT RIDGE THE WIRES OR MAKE STREAKS"

FOR PAPER MACHINE WIRES, FELTS AND SCREENS

THE MOORE & WHITE COMPANY
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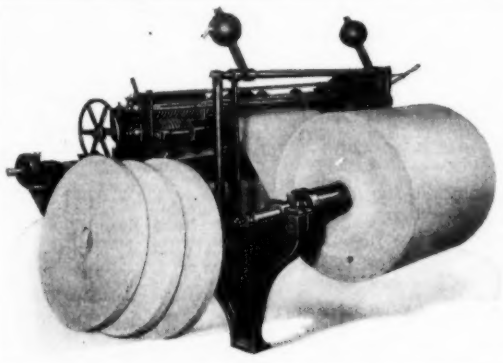

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Designed to meet the requirements of all users of Automatic Machines that take the stock from the roll, and require a roll of large diameter wound true and solid.

With this slitter, wide and narrow widths cut at the same time are of uniform tension. A roll slit and rewound 1" wide and 48" diameter can be handled without danger of spinning. At very little additional cost per ton paper mills equipped with this Slitter can furnish their customers with paper or board slit and rewound from 1" width and up. Made in three widths: 48"—60"—72".

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AMSTERDAM, N. Y.

Manufacturers of
AUTOMATIC MACHINERY FOR PAPER BOXES AND ROTARY PAPER CUTTING MACHINERY

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, August 5, 1931

BLANC FIXE.—Demand for blanc fixe is fairly satisfactory. The contract movement is moderately heavy. The pulp is quoted at from $42.50 to $45 per ton; while the powder is still selling at from 3¾ cents to 4½ cents per pound, in barrels, at works.

BLEACHING POWDER.—While the bleaching powder market continues quiet, the industry is considered in a sound position. Contract shipments are moving in fair volume. Bleaching powder is still quoted at from $2 to $2.35 per 100 pounds, in drums, at works.

CASEIN.—The casein market is rather spotty. Domestic standard ground is quoted at 6 cents and finely ground at 7½ cents per pound. Argentine standard ground is selling at 8½ cents and finely ground at 9½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Business in the caustic soda market continues dull. Prices are holding to schedule. Solid caustic soda is quoted at from $2.50 to $2.55; while the flake and the ground are selling at from $2.90 to $2.95 per 100 pounds, in large drums, at works.

CHINA CLAY.—Demand for china clay is restricted. The contract movement is fairly heavy. Prices remain unchanged. Imported china clay is quoted at from $13 to $21 per ton; while domestic paper making clay is selling at from $7 to $11 per ton, at mine.

CHLORINE.—Conditions in the chlorine market are unchanged. Shipments against contract are going forward in moderate volume. Prices are holding to schedule. Chlorine is quoted at $1.75 per 100 pounds, in tanks, or multi-unit cars, in large drums, at works.

ROSIN.—Some improvement is noticed in the rosin market. The grades of gum rosin used in the paper mills are quoted at from $4.25 to $4.45 per 280 pounds, in barrels, at works. Wood rosin is selling at $3.80 per 280 pounds, in barrel, on dock, car lot quantities.

SALT CAKE.—Steadiness prevails in the salt cake market. Demand is fairly persistent. Salt cake is quoted at from $16 to $17 and chrome salt cake at from $14 to $15 per ton, in bulk, at works. Foreign salt cake is selling at from $15 to $15.50, ship side.

SODA ASH.—Quietness continues to reign in the soda ash market. While demand from the mills is restricted, prices are fairly steady. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows; in bulk, $1; in bags, $1.15; and in barrels, $1.38.

STARCH.—The starch market is exhibiting a strong undertone. Supplies are moving with regularity. Prices are holding to formerly quoted levels. Special paper making starch is selling at $2.67, in bags; and at $2.94 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Most of the business transacted in the sulphate of alumina market during the past week was along routine lines. Commercial grades are quoted at from $1.25 to $1.40; iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market continues steady. Sulphur is quoted at $18 per long ton on orders of 1,000 tons, or over, on yearly contracts; and at $20 per ton on any smaller quantity over that period. On spot and near by car loads, the quotation is $21 per ton.

TALC.—No radical changes have transpired in the talc market. The contract movement is about normal. Prices are holding to schedule. Domestic talc is quoted at from $16 to $18 per ton, in bulk; while imported talc is selling at from $18 to $22 per ton, ship side.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	11.00	@38.00
Bonds	6.75	@53.25
Writings—		
Extra Superfine	14.00	@32.00
Superfine	14.00	@32.00
Tub sized	10.00	@15.00
Engine sized	6.75	@11.00
Book, Cased—		
S. & S. C.	5.25	@ —
M. F.	5.00	@ —
Coated and Enamel	6.75	@10.25
Lithograph	7.25	@11.75
Tissues—Per Ream—		
White No. 1	.65	@ .70
Anti-Tarnish M. G. only	.65	@ .70
Colored	.70	@ .90
White No. 2	.55	@ .60
Kraft	.65	@ .70
Manila	.55	@ .60
Manila—		
No. 1 Jute	9.00	@ 9.25
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.00	@ 5.25
No. 2 Wood	3.50	@ 4.00
Butchers	3.37½	@ —
Fibre Papers—		
No. 1 Fibre	4.25	@ 5.50
No. 2 Fibre	4.00	@ 4.75
Common Bogus	1.50	@ 3.00
Screenings	2.00	@ 3.00
Card Middles	4.00	@ 5.00
Glassine—		
Bleached, basis 25 lbs., No. 1	.09¼	@ —
No. 2	.11¼	@ —
Bleached, basis 20 lbs.	.11¼	@ —
(Delivered New York)		
News, per ton—		
Rolls, contract	57.00	@ —
Rolls, spot	57.00	@ —
Sheets	62.00	@ —
Side Runs	42.00	@46.00
Kraft—		
No. 1 Domestic	4.50	@ 5.75
No. 2 Domestic	4.00	@ 4.50
Southern	3.45	@ 4.25
Imported	6.00	@ 7.00
Boards—per ton—		
News	26.00	@27.50
Straw	34.50	@45.00
Chip	26.00	@27.50
Binders' Boards	65.00	@70.00
Standard 85 Test Liner	32.50	@35.00
Sgl. Mla. Ll. Chip	37.50	@42.50
(F. o. b. Mill)		
Wood Pulp Boards	70.00	@80.00

Mechanical Pulp

(On Dock)

No. 1 Imported—		
Moist	24.00	@28.00
Dry	26.00	@28.00
(F. o. b. Mill)		
No. 1 Domestic	25.00	@30.00

Chemical Pulp

(On Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	2.50	@ 3.50
Easy Bleaching	2.15	@ 2.35
No. 1 strong unbleached	1.90	@ 2.25
Mitscherlich unbleached	2.00	@ 2.25
No. 2 strong unbleached	1.80	@ 2.00
No. 1 Kraft	1.50	@ 1.70
No. 2 Kraft	1.35	@ 1.50
Sulphate—		
Bleached	2.75	@ 3.25
(F. o. b. Pulp Mill)		
Sulphite (Domestic)—		
Bleached	2.25	@ 4.75
Easy Bleaching	2.50	@ 2.75
News	1.80	@ 2.50
Mitscherlich	2.40	@ 3.00
Kraft (Domestic)	1.60	@ 2.75
(Delivered Paper Mills)		
Soda Bleached	3.00	@ —

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White, No. 1	6.50	@ 7.00
New White, No. 2	5.50	@ 6.00
Silesias No. 1	5.25	@ 5.50
New Unbleached	7.00	@ 7.50
New Blue Prints	4.00	@ 4.50
New Soft Blacks	3.50	@ 4.00
Blue Overall	5.00	@ 5.25
Fancy	3.00	@ 3.50
Washables	2.75	@ 3.00
Mixed Khaki Cuttings	3.50	@ 4.00
Pink Corset Cuttings	5.00	@ 5.50
O. D. Khaki Cuttings	4.50	@ 4.75
Men's Corduroy	3.00	@ 3.50
New Mixed Blacks	3.00	@ 3.25

Old Rags

White, No. 1—		
Repacked	5.25	@ 5.75
Miscellaneous	4.25	@ 4.75
White, No. 2—		
Repacked	3.00	@ 3.50
Miscellaneous	2.30	@ 2.50
St. Soiled, White	1.50	@ 1.75
Thirds and Blues—		
Repacked	2.25	@ 2.50
Miscellaneous	1.65	@ 1.85
Black Stockings	3.25	@ 3.75
Roofing Rags—		
Cloth Strippings	1.25	@ 1.30
No. 1	1.25	@ 1.30
No. 2	.90	@ 1.00
No. 3	.70	@ .80
No. 4	.65	@ .70
No. 5A	.50	@ .60

Foreign Rags

New Rags

New Dark Cuttings	2.00	@ 2.15
New Mixed Cuttings	2.10	@ 2.40
New Light Silesias	5.00	@ 5.38
Light Flannelettes	5.00	@ 5.25
Unbleached Cuttings	6.75	@ 7.00
New White Cuttings	6.25	@ 6.50
New Light Oxfords	5.00	@ 5.50
New Light Prints	3.25	@ 3.50

Old Rags

No. 1 White Linens	6.50	@ 6.75
No. 2 White Linens	5.75	@ 5.25
No. 3 White Linens	4.00	@ 4.50
No. 4 White Linens	2.50	@ 3.00
No. 1 White Cotton	4.50	@ 5.00
No. 2 White Cotton	3.50	@ 4.25
No. 3 White Cotton	2.50	@ 3.25
No. 4 White Cotton	1.50	@ 1.75
Extra Light Prints	2.25	@ 2.50
Ord. Light Prints	2.00	@ 2.25
Med. Light Prints	1.55	@ 1.60
Dutch Blue Cottons	1.50	@ 1.60
French Blue Linens	2.40	@ 2.50
German Blue Linens	2.10	@ 2.20
German Blue Cottons	1.45	@ 1.50
Checks and Blues	1.40	@ 1.45
Lindsay Garments	.90	@ 1.00
Dark Cottons	.70	@ .75
Old Shopperies	.65	@ .70
New Shopperies	.60	@ .65
French Blues	1.40	@ 1.50

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—		
Foreign	1.60	@ 1.75
Domestic	1.65	@ 1.80
Wool Tares, light	1.60	@ 1.75
Wool Tares, heavy	1.20	@ 1.25
Bright Bagging	1.20	@ 1.30
Small Mixed Rope	.90	@ 1.00
Manila Rope—		
Foreign	1.90	@ 2.00
Domestic	2.10	@ 2.2.
New Burlap Cut	1.80	@ 1.90
Hessian Jute Threads—		
Foreign	2.60	@ 2.75
Domestic	2.80	@ 3.00

Old Waste Papers

(F. o. b. New York)

Shavings—		
Hard, white, No. 1	2.65	@ 2.85
Hard, white, No. 2	2.15	@ 2.25
Soft, white, No. 1	2.15	@ 2.25
White envelope cuttings	2.60	@ 2.70
Flat Stock—		
tings	2.50	@ 2.60
Stitchless	.80	@ .90
Overissue Mag	.80	@ .90
Solid Flat Book	.65	@ .75
Crumpled No. 1	.55	@ .60
Solid Book Ledger	1.75	@ 1.85
Ledger Stock	.75	@ .80
New B. B. Chips	.20	@ .30
Manilas—		
New Env. Cut	1.75	@ 1.85
New Cuttings	1.50	@ 1.60
Extra No. 1 old	1.10	@ 1.25
Print	.45	@ .50
Bogus Wrapper	.45	@ .50
Container	.25	@ .30
Old Kraft Machine—		
Compressed bales	1.20	@ 1.30
News—		
No. 1 White News	1.55	@ 1.65
Strictly Overissue	.35	@ .45
Strictly Folded	.25	@ .30
No. 1 Mixed Paper	.20	@ .30
Common Paper		Nominal

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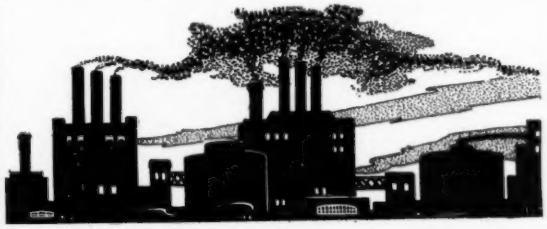

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Twines

(F. o. b. Mill)

Cotton—			
B. C., 18 basis	.30	@	.32
No. 1	.20	@	.22
No. 2	.19	@	.20
No. 3	.17	@	.18
A. Italian, 18 basis	.36	@	.37
Finished Jute—			
Dark, 18 basis	.18	@	.20
Light, 18 basis	.20	@	.22
Jute Wrapping, 3-6 Ply—			
No. 1	.13	@	—
No. 2	.11	@	—
Tube Rope—			
4-ply and larger	.09	@	—
Fine Tube Rope—			
4-ply	.11	@	—
3-ply	.12	@	—
2-ply	.13	@	—
Paper Makers Twine			
Balls	.07	@	—
Box Twine, 2-3 ply	.07	@	.08
Jute Rope	.09	@	.10
Amer. Hemp, 6	.27	@	.29
Java Sisal—			
No. 1 Basis	.10	@	—
No. 2 Basis	.09	@	—
New Zealand Sisal	.10	@	—
Sisal Lath Yarn—			
No. 1	.12	@	.14
No. 2	.10	@	.12
Manila Twine	.21	@	.22

CHICAGO

Paper

(F. o. b. Mill)

Rag Bond	.30	@	.53¼
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.06¼	@	.11
Superfine Writing	.18	@	.24
No. 1 Fine Writing	.14	@	.18
No. 2 Fine Writing	.12	@	.14
No. 3 Fine Writing	.08½	@	.12
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¼	@	.07¾
No. 2 S.&S.C. Book	.05¼	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¼	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.04	@	.04½
No. 1 Kraft	5.00	@	5.50
Southern Kraft	3.75	@	4.00
No. 2 Kraft	3.75	@	4.00
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue	.07	@	.07¼
White Tissue	.07¼	@	.07½
(Delivered Central Territory)			
News, per ton—			
Rolls, contract	57.00	@	—
Sheets	62.00	@	—
Boards, per ton—			
Plain Chip	30.00	@	35.00
Solid News	32.50	@	37.50
Manila Lined Chip	40.00	@	45.00
Container Lined—			
85 Test	50.00	@	55.00
100 Test	55.00	@	60.00

Old Papers

(F. o. b. Chicago)

Shavings—			
No. 1 Hard White	2.35	@	2.40
White Env. Cuttings	—	@	—
No. 1 Soft Shavings	2.10	@	2.15
Ledger & Writings	.70	@	.75
Solid Books	.75	@	.80
Blanks	1.60	@	1.65
Krafts	1.25	@	1.35
New Kraft Cuts	1.35	@	1.45
Manila Env. Cuts	1.50	@	1.55
Ex. No. 1 Manila	1.25	@	1.30
Print Manila	.40	@	.45
Overissue News	.40	@	.45
Old Newspapers—			
No. 1	.35	@	.40
No. 2	.30	@	.35
Mixed Papers—			
No. 1	.28	@	.30
No. 2	.20	@	.25
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper

(F. o. b. Mill)

Bonds	.05	@	.40
Ledgers	.07	@	.40
Writings—			
Superfine	.12	@	.18
Extra fine	.16	@	.22
Fine	.15	@	.26
Fine, No. 2	.13½	@	.25
Fine, No. 3	.08½	@	.20
Book, M. F.	.05	@	.07
Book, S. S. & C.	.05	@	.07½
Book, Coated	.08	@	.16
Coated Lithograph	.07	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.07	@	.09
Manila Sul., No. 1	.03¼	@	.05½
Manila No. 2	.03	@	.04
No. 1 Kraft	.05¼	@	.06
No. 2 Kraft	.03¾	@	.04¼
Southern Kraft No. 1	—	@	.03¾
Southern Kraft No. 2	—	@	.03¾
Common Bogus	.03	@	.04
(Delivered Philadelphia)			
News Print Rolls	58.00	@	62.00
Straw Board	50.00	@	—
News Board	29.00	@	30.00
Chip Board	27.50	@	—
Wood Pulp Board	85.00	@	95.00
Binder Boards—			
No. 1, per ton	75.00	@	—
No. 2, per ton	68.00	@	—
Carload lots	66.00	@	70.00
Tarred Felts—			
Regular	55.50	@	57.00
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1.	.06	@	.07
New White, No. 2.	.05½	@	.06
Light Silesias	.05	@	.05½
Silesias, No. 1	.06	@	.08
Black Silesias, soft.	.05	@	—
New Unbleached	.06½	@	.07
Washable, No. 1	.03	@	.03½
Blue Overall	.05	@	.05½
Cottons—According to grades—			
Washable, No. 2	.02	@	.02½
New Blue	.02	@	.02½
Fancy	.03½	@	—
New Black Soft	.03	@	.03½
New Light Seconds	.01¾	@	.02
New Dark Seconds	1.85	@	2.00
Khaki Cuttings—			
No. 1 O. D.	.04½	@	.05
No. 2 Mixed	.03½	@	.04
Corduroy	.02½	@	.03
New Canvas	.06½	@	.07
New Black Mixed.	.03	@	.03½

Domestic Rags (Old)

White No. 1—			
Repacked	3.50	@	4.00
Miscellaneous	2.50	@	3.00
M. G.	4.50	@	—
Thirds and Blues—			
Miscellaneous	1.25	@	1.50
Repacked	1.75	@	2.00
Black Stockings (Export)	3.80	@	4.00
Roofing Stock—			
Foreign No. 1	1.15	@	1.25
Repacked	.80	@	.90

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.50	@	1.60
Domestic	1.75	@	—
Manila Rope	2.50	@	2.75
Sisal Rope	1.25	@	1.50
Mixed Rope	1.10	@	1.25
Scrap Burlaps—			
No. 1	1.50	@	1.60
No. 2	1.10	@	1.20
Wool Tares, heavy	3.00	@	—
Mixed Strings	1.15	@	1.25
No. 1 New Light Burlap	2.50	@	2.75
New Burlap Cuttings	2.00	@	2.25

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 1 Hard White.	2.30	@	2.35
No. 2 Hard White.	2.00	@	2.05
No. 1 Soft White.	1.75	@	1.85
No. 2 Soft White.	1.30	@	1.45
No. 1 Mixed	.75	@	.80
No. 2 Mixed	.50	@	.55
Solid Ledger Stock	1.25	@	1.30
Writing Paper	.70	@	.80
No. 1 Books, heavy	.75	@	.80
No. 2 Books, light	Normal		
No. 1 New Manila	1.60	@	1.75
No. 1 Old Manila	1.25	@	1.30
Print Manila	.40	@	.50
Container Manila	.40	@	.45
Old Kraft	.90	@	1.05
Common Paper	.20	@	.25
No. 1 Mixed Paper	.25	@	.30
Straw Board, Chip	.35	@	.40
Binders Board, Chip	.35	@	.45
Corrugated Board	.40	@	.45
Overissue News	.35	@	.40
Old Newspaper	.25	@	.30

BOSTON

Paper

(F. o. b. Mill)

Ledgers—			
Sulphite	.07½	@	.12½
Rag Content	.15	@	.30
All Rag	.38	@	.52½
Bonds—			
Sulphite	.06½	@	.11½
Rag content	.15	@	.30
All rag	.36½	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.04½	@	.05½
No. 2 Kraft	.03¾	@	.04½
(F. o. b. Boston)			
Southern Kraft	.03¾	@	.04
(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)			
Common Bogus	.02	@	.02¼
(Delivered New England points)			
News Print, rolls	—	@	56.50
Straw Board, rolls	.009	—	@ 52.50
Straw Board in Sheets, basis 35s to 70s	—	@	50.00
Filled News Board	27.50	@	30.00
Chip Board	27.50	@	—
Chip Board (Creasing)	27.50	@	30.00
Single Manila Lined Chip	40.00	@	45.00
Single White, Patent Coated News Board—Binder	52.50	@	60.00
Wood Pulp Board	70.00	@	75.00
Binder Boards	67.50	@	75.00

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White	3.25	@	3.75
No. 2 Hard White	2.50	@	2.60
No. 1 Soft White	2.25	@	2.40
No. 2 Mixed	.60	@	.65
No. 1 Mixed	.90	@	1.00
Solid Ledger Books	1.75	@	2.00
Overissue Ledger Stock	1.35	@	1.60
Mixed Ledgers	1.15	@	1.30
No. 1 Books, heavy	.75	@	.90
No. 1 Books, light	—	@	.45
Crumpled Stitchless Book Stock	1.00	@	1.25
Manila Env. Cuttings	1.85	@	2.00
No. 1 Old Manila	—	@	1.00
White Blank News	1.50	@	1.60
Kraft No. 1	—	@	1.25
Manila	.80	@	.90
No. 1 Mixed Paper	.16	@	.20
Print Manila	.35	@	.40
Overissue News	—	@	.40
Old Newspapers	.25	@	.30
Box Board, Chip	.16	@	.20
Corrugated Boxes	.35	@	.45

Bagging

(F. o. b. Boston)

Gunny No. 1—			
Foreign	—	@	1.80
Domestic	1.50	@	1.60
Manila Rope—			
Foreign	—	@	1.75
Domestic	—	@	2.00
Transmission Rope	1.40	@	1.50
Mixed String	.50	@	.55
Jute Rope	1.00	@	1.15
Jute Carpet Threads	.75	@	.90
Bleachery Burlap	2.50	@	2.75
No. 1 Scrap Burlap	1.10	@	1.25
Scrap Sisal	1.35	@	1.45
Scrap Sisal for shredding	1.50	@	1.60
Wool Tares, heavy	1.25	@	1.30
New Burlap Cutting	1.50	@	1.25
Australian Pouches	2.00	@	2.25
Heavy Baling Bagging	1.50	@	1.60
Paper Mill Bagging	.90	@	1.05
Bagging No. 2	.50	@	—
No. 1 Burlap	—	@	3.50

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New White No. 1.	.06½	@	.07
New White No. 2.	—	@	.06
Silesias No. 1	.06	@	.06¼
New Black Silesias	.02½	@	.02¾
New Unbleached	—	@	.08
Fancy	.04	@	.04½
Washable	.04	@	.04½
Cottons—According to grades—			
Blue Overalls	.05	@	.06
New Black, soft	.04	@	.04¼
Khaki Cuttings	.04	@	.04½
O. D. Khaki	.04½	@	.05
Corduroy	.03	@	.03½
New Canvas	.08	@	.08½

Domestic Rags (Old)

(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	4.75	@	5.25
Miscellaneous	—	@	4.00
White No. 2—			
Repacked	.04½	@	.05
Miscellaneous	.03½	@	.04
Twos and Blues	2.50	@	2.75
Thirds and Blues—			
Repacked	1.60	@	1.80
Miscellaneous	1.00	@	1.20
Black Stockings	3.25	@	3.50
Roofing Stock—			
No. 1	—	@	.63
No. 2	—	@	.58
No. 3	—	@	.53

Foreign Rags

(F. o. b. Boston)

Dark Cottons	—	@	.70
New No. 1 White Shirt Cuttings	6.50	@	6.75
Dutch Blues	—	@	1.80
New Checks & Blues	4.00	@	4.50
Old Fustians	1.55	@	1.65
Old Linsey Garments	.80	@	.90

TORONTO

Paper

(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.10¾	@	—
No. 2 Sulphite	08½	@	—
No. 1 Colored	.11¼	@	—
No. 2 Colored	.09	@	.10½
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
Book—			
No. 1 M. F. (carloads)	6.65	@	—
No. 3 M. F. (carloads)	6.20	@	—
No. 1 S. C. (carloads)	7.15	@	—
No. 3 S. C. (carloads)	6.65	@	—
No. 4 S. C. (carloads)	5.70	@	—
No. 1 Coated and Litho	12.50	@	—
No. 2 Coated and Litho	11.50	@	—
No. 3 Coated and Litho	10.00	@	11.50
Coated tinted	14.00	@	—
Wrapping—			
Rag Brown	4.95	@	—
White Wrap	5.25	@	—
"B" Manila	5.00	@	—
No. 1 Manila	5.40	@	—
Fiber	5.40	@	—
Kraft, M. F.	5.90	@	—
Kraft No. 2	5.40	@	—

(Delivered Toronto)

News, per ton—			
Rolls (contract)	56.50	@	57.00
Sheets	61.50	@	—

Pulp

(F. o. b. Mill)

Ground Wood	30.00	@	32.00
Sulphite easy bleaching	50.00	@	—
Sulphite, news grade	44.00	@	—
Sulphite, bleached	62.50	@	75.00
Sulphate	60.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	2.80	@	—
Soft White	2.60	@	—
White Blk. News	1.50	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.10	@	—
Light and Crumpled Book Stock	1.20	@	—
Ledgers and Writings	—	@	—
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	.80	@	—
Kraft	1.90	@	—
News and Scrap—			
Strictly Overissue	.70	@	—
Strictly Folded	.70	@	—
No. 1 Mixed Paper	.60	@	—

Domestic Rags

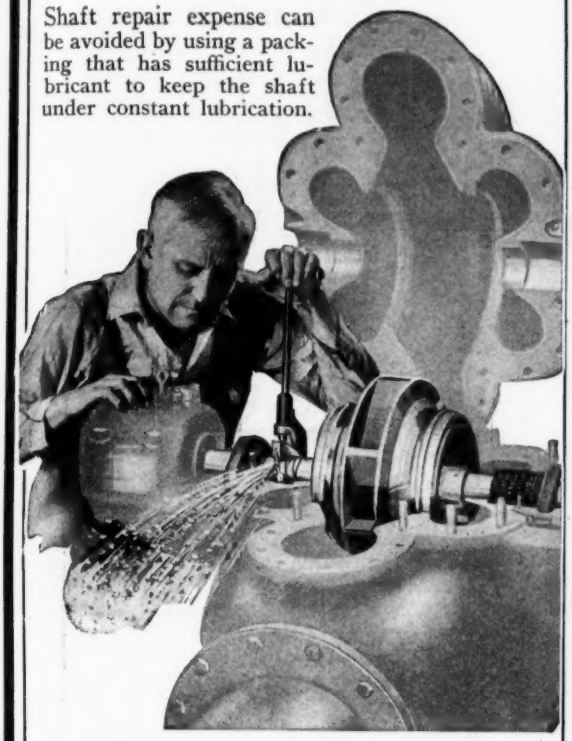
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.09½	@	.10
Fancy Shirt Cuttings	.06	@	.06¼

Some Packings Wear the Shaft Like a Pipe Cutter

Friction Caused by Unlubricated Packings Will Destroy the Shaft

Shaft repair expense can be avoided by using a packing that has sufficient lubricant to keep the shaft under constant lubrication.



For CAUSTIC SODA and SIMILAR CHEMICALS use

CUTNO PACKING

It carries in each separate strand, a lubricant that resists the washing-out tendency of solutions of Caustic Soda and similar Chemicals. "CUTNO" holds its lubricant for lubricating purposes.

Flax Packing Ruined This Shaft

Let us send you free working sample of "Cutno" for practical test. State size of packing used.

FOR STEAM HOT PALMETTO

GREENE, TWEED & CO.

Sole Manufacturers

109 Duane St. New York

PAPER TRADE JOURNAL

ESTABLISHED 1872

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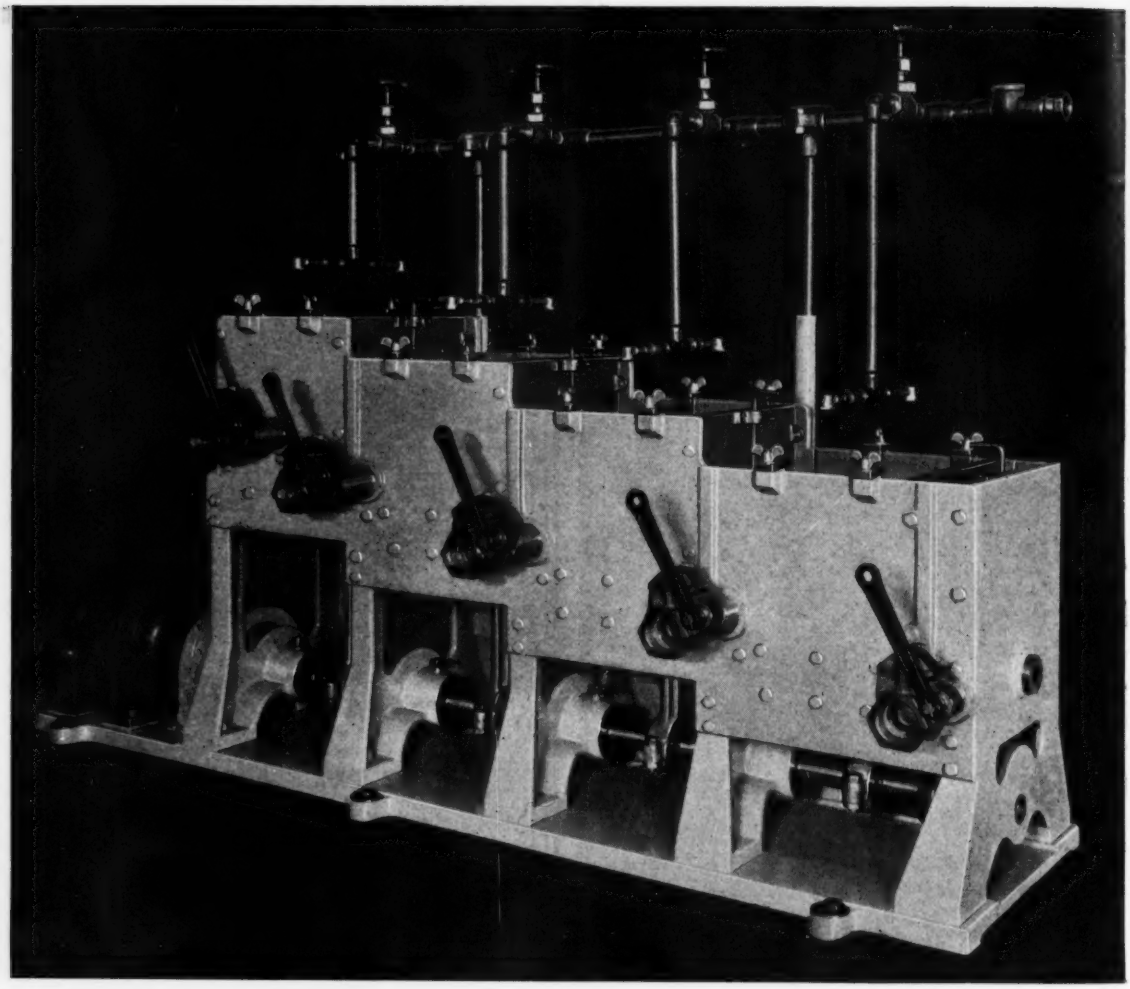
TABLE OF CONTENTS

Copyright, 1931, by the Lockwood Trade Journal Co., Inc.

Huge Power Project for Manitoba	13
Chicago Trade Anticipates Busy Autumn	14
Paperboard Industries Association Activities	14
Abitibi Power Development Progresses	16
Sees General Pulp Shortage	16
Manitoba Pulpwood Exports	16
Riverbend Mill Closed for Month	18
Mohawk Papermakers Inc. Sold	18
Amalgamated Paper Co. Expands	18
More Russian Wood for Albany	19
Philadelphia Market Fairly Active	20
Andrews Paper House to Add Lines	20
Wolf Bros. Business Developments	20
Better Prospects for Willapa Mill	22
Mersey Paper Mill Praised	22
Obituary	24
German Pulp Producers Plan Cut	24
Cellophane Prices Reduced	24
New York Trade Jottings	26
Construction News	28
Paper and Paper Stock Imports and Exports	32
To Reduce Oregon Printing Costs	34
Joseph D. Bennett Sails for Shanghai	34
Editorial	**36**
To Cut Production of Sulphite	37
TAPPI Notes	37
Wide Interest in Oswegatchie Sale	37
Tissue Co. Expands at Camas	37
S. Morgan Smith Co. Issues Catalog	37
Technical Section	
Hydration of Wood Cellulose	39
The Volumetric Composition of Paper	42
Fiber Substance Density of Pulps and Papers	45
Current Paper Trade Literature	47
Cost Section	**51**
Equipment for Rubber Printing Plates	54
Imports of Paper and Paper Stock	56
New York Market Review	**60**
Miscellaneous Markets	**62**
Market Quotations	**62**

THE PAPER TRADE JOURNAL is indexed in Industrial Arts Index

Want and For Sale Advertisements, 65-66-67-68



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